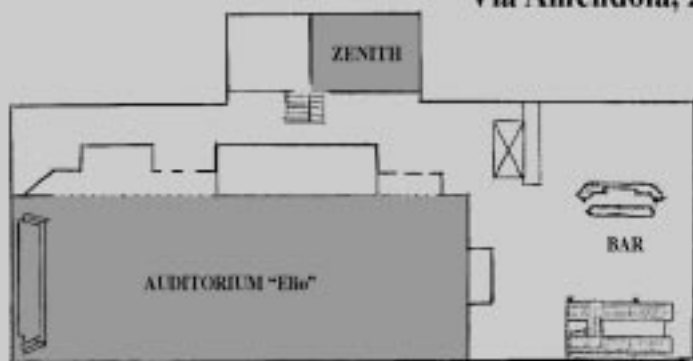


INDEX

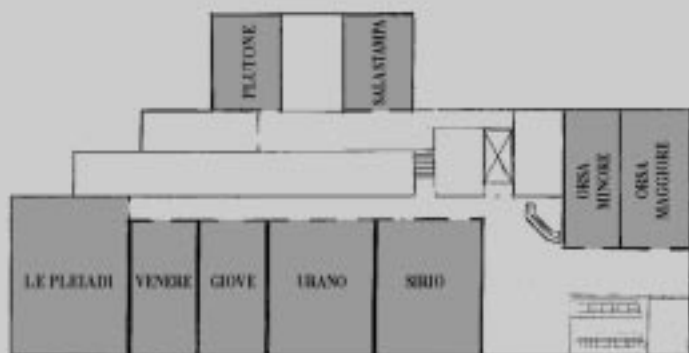
Conference Seat	2
Congress Outline	4
Meeting Rooms by Symposia/Conference	6
Events by Day	7
Sessions Flowsheet	15
Monday June 7 Morning	16
Monday June 7 Afternoon	17
Tuesday June 8 Morning	30
Tuesday June 8 Afternoon	44
Wednesday June 9 Morning	63
Thursday June 10 Morning	81
Thursday June 10 Afternoon	98
Friday June 11 Morning	114
Poster Presentations	128
Social Programme	145
Optional Tours	148

PALAZZO DEI CONGRESSI

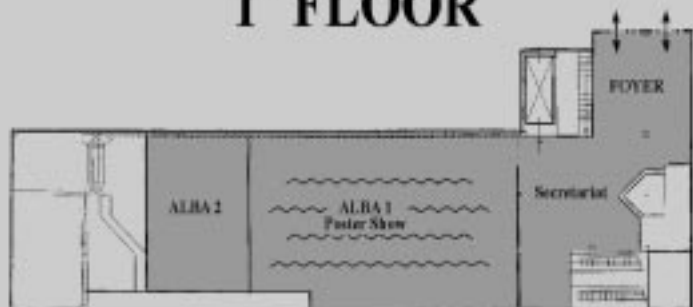
Via Amendola, 2



2nd FLOOR



1st FLOOR

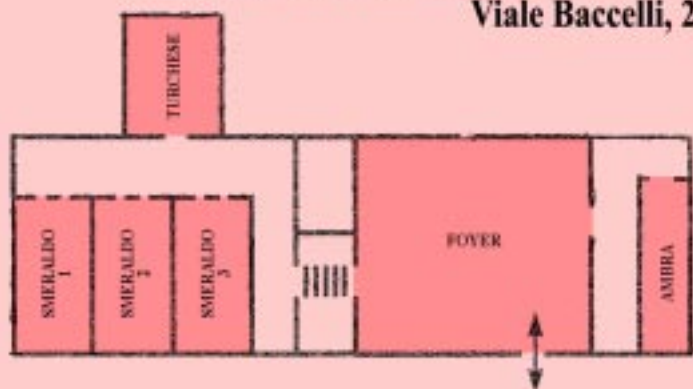


GROUND FLOOR

VITTORIA CONGRESSI

Congress Centre Hotel Vittoria

Viale Baccelli, 2



**Symposia held at
“PALAZZO DEI CONGRESSI”**

Via Amendola 2

**Symposium CA
Ceramic Powders: Synthesis
Processing and Sintering**

**Symposium CB
Novel routes for Ceramics
Synthesis and Processing**

**Symposium CC
Progress in the Understanding and Control of
Ceramics Surfaces for Tribology and Corrosion**

**Symposium CD
Ceramic Joining**

**Symposium CE
Ceramics and Composites in
Extreme Environments**

**Symposium CF
Ceramics for Chemical, Electrochemical and
Environmental Applications**

**Symposium CG
Ceramic Thin Films and Coatings for Protective,
Tribological and Multifunctional Applications**

**Symposium CH
Advances in Electrical, Magnetic and
Optical Ceramics**

**Symposium CI
Magnetic and Transport Properties of Oxides**

**Symposia held at
“VITTORIA CONGRESSI”**

Viale Baccelli 2

**Symposium CJ
Science and Technology for
Silicate Ceramics**

**Symposium CK
Geopolymers and Geocements**

**Symposium CL
Refractoreis: Recent Developments in
Materials, Production and Use**

**2nd International Conference
Disclosing Materials at Nanoscale**

**6th International Conference
Advanced Inorganic Fibre Composites for
Structural and Thermal Management Applications**

CONGRESS OUTLINE

SYMPOSIUM **CA**

Ceramic Powders: Synthesis, Processing and Sintering

SYMPOSIUM **CB**

Novel Routes for Ceramics Synthesis and Processing

*Focused Session **CB-11***

Self-propagating High-temperature Synthesis of Ceramics

*Focused Session **CB-12***

Layered and Functionally Graded Materials

SYMPOSIUM **CC**

Progress in the Understanding and Control of Ceramics Surfaces for Tribology and Corrosion

SYMPOSIUM **CD**

Ceramic Joining

SYMPOSIUM **CE**

Ceramics and Composites in Extreme Environments

SYMPOSIUM **CF**

Ceramics for Chemical, Electrochemical and Environmental Applications

SYMPOSIUM **CG**

Ceramic Thin Films and Coatings for Protective, Tribological and Multifunctional Applications

SYMPOSIUM CH

Advances in Electrical, Magnetic and Optical
Ceramics

Focused Session CH-6
Multiferroics

SYMPOSIUM CI

Magnetic and Transport Properties of
Oxides

SYMPOSIUM CJ

Science and Technology for Silicate
Ceramics

SYMPOSIUM CK

Geopolymers and Geocements:
Low Environmental Impact Ceramic Materials

SYMPOSIUM CL

Refractories: Recent Developments in Materials,
Production and Use

Serial Conferences

CM

2nd International Conference

Disclosing Materials at Nanoscale

CN

6th International Conference

Advanced Inorganic Fibre Composites for
Structural and Thermal Management
Applications

Meeting Rooms by Symposia / Conferences

PALAZZO DEI CONGRESSI

OPENING SESSION	AUDITORIUM
Symposium CA	AUDITORIUM
.....	VENERE
Symposium CB	LE PLEIADI
.....	ORSA MAGGIORE
.....	ORSA MINORE
.....	ZENITH
Symposium CC	ZENITH
Symposium CD	ZENITH
Symposium CE	VENERE
Symposium CF	ALBA 2
Symposium CG	URANO
.....	GIOVE
Symposium CH	SIRIO
.....	GIOVE
.....	ORSA MAGGIORE
Symposium CI	GIOVE
.....	URANO

VITTORIA CONGRESSI

Symposium CJ	SMERALDO 1
Symposium CK	SMERALDO 1
.....	SMERALDO 3
Symposium CL	TURCHESE
.....	SMERALDO 3
Conference CM	SMERALDO 2
.....	AMBRA
Conference CN	AMBRA

Events by Day

Sunday June 6

11.00-13.00 15.00-19.00

REGISTRATION
Palazzo dei Congressi
Via Amendola, 2
Montecatini Terme, Pistoia, Italy

15.00-19.00

POSTER MOUNTING

Monday June 7

Morning: 9.30-13.00

Opening Session
Welcome Addresses

Formal induction of the new
Members of the World Academy
of Ceramics (13th Election)

Plenary Lectures (C:PL1-PL3)

8.30-13.00

POSTER MOUNTING

Afternoon: 15.00-19.30

- Symposium CA (CA-1:IL01-IL04)
(CA-1:IL05-L09)
- Symposium CB (CB-1:IL01-IL04)
(CB-1:IL05-IL07b)
(CB-11.1:IL01-L03)
(CB-12.1:IL01-L04)
- Symposium CD (CD-1:IL01-IL04)
(CD-1:IL05:L08)
- Symposium CE (CE-1:IL01-L05)
(CE-3:IL01-L04)
- Symposium CF (CF-1:IL01-IL03)
(CF-3.2:IL01-L05)
- Symposium CG (CG-1:IL01-L05)
(CG-1:IL06-L09)
- Symposium CH (CH-1:IL01-IL04)
(CH-1:IL05-IL07)
(CH-6.1:IL01-IL03)
(CH-6.1:IL04-IL07)
- Symposium CI (CI-1:IL01-IL03)
(CI-1:IL04-L06)
- Symposium CJ (CJ-1:IL01-IL03)
- Symposium CK (CK:KL)
(CK-1:IL01-IL02)
- Symposium CL (CL:KL)
(CL-1:IL01-IL03)
(CL-2:IL01-L04)
- Conference CM (CM-1:IL02-IL04)
(CM-1:IL05-L07)

15.00-19.00

POSTER MOUNTING

21.00-23.30
Opening Concert
"Opera Gran Galà"

Tuesday June 8

Morning: 8.30-13.00

- Symposium CA (CA-1:IL10-L13)
(CA-2:IL02-L05)
- Symposium CB (CB-3:IL01-IL03)
(CB-3:IL04-L08)
(CB-4:IL01-L05)
(CB-10:L04-L06)
(CB-11.2:IL01-L04)
(CB-12.1:IL06-L10)
- Symposium CD (CD-1:L09-IL10)
(CD-2:IL01-IL03)
(CD-3:IL01-IL03)
- Symposium CE (CE-1:IL11-L16)
(CE-1:IL17-IL18)
(CE-2:IL01-IL02)
- Symposium CF (CF-2:IL06-L08)
(CF-4.2:IL01-L05)
- Symposium CG (CG-1:IL10-L13)
(CG-2:IL01-L06)
- Symposium CH (CH-1:IL08-IL11)
(CH-2:IL01-IL04)
- Symposium CI (CI-2:IL01-IL06)
- Symposium CJ (CJ-1:IL04-L06)
- Symposium CK (CK-1:IL03-L07)
(CK-3:L13)
- Symposium CL (CL-1:L04-L08)
(CL-3:IL01-L05)
- Conference CM (CM-1:IL10-L12)
(CM-2:IL01-IL04)
- Conference CN (CN-1:IL01-L04)
(CN-1:IL06-L07)

Afternoon: 15.00-19.30

- Symposium CA (CA-1:IL06)
(CA-1:L15-L20)
(CA-2:IL06-L09)
(CA-4:L05-L11)
- Symposium CB (CB-1:L08-L13)
(CB-1:L14-L18)
(CB-7:L07-L11)
(CB-8:L04-L09)
(CB-11.2:IL05-L08)
(CB-12.2:IL01-IL03)
- Symposium CE (CE-2:IL03-L07)
- Symposium CF (CF-1:L05-L07)
(CF-2:IL01-L05)
- Symposium CG (CG-1:IL14-L18)
(CG-2:IL07-L10)
- Symposium CH (CH-2:IL05-L09)
(CH-2:IL10-L13)
(CH-6.3:L01-L04)
(CH-6.4:IL02-L04)
- Symposium CI (CI-3:IL01-L05)
(CI-3:IL06-IL08)
- Symposium CJ (CJ-1:IL08-L11)
- Symposium CK (CK-1:IL08-L12)
- Symposium CL (CL-2:IL05-L08)
(CL-3:IL06-L10)
- Conference CM (CM-1:IL13-IL14)
(CM-1:L16-L21)
(CM-2:IL05)
(CM-2:L10-L14)

Wednesday June 9

Morning: 8.30-13.00

- Symposium CA (CA-2:IL10-IL13)
(CA-2:IL14-IL15)
(CA-5:IL01-IL02)
- Symposium CB (CB-5:IL01-L05)
(CB-7:IL01-IL02)
(CB-11.3:IL01-L04)
(CB-11.4:IL01-L04)
- Symposium CC (CC-1:IL02-L06)
- Symposium CD (CD-2:IL04-IL05)
(CD-3:IL06-IL07)
- Symposium CE (CE-1:IL06-L10)
(CE-2:IL08-L12)
- Symposium CF (CF-4.1:IL01-L05)
(CF-4.1:IL06-L09)
- Symposium CG (CG-2:IL13-L14)
(CG-4:IL01-L03)
- Symposium CH (CH-3:IL01-L04)
(CH-3:IL05-L07)
(CH-6.4:IL05-IL08)
(CH-6.6:IL06-L09)
- Symposium CI (CI-4:IL01-L05)
(CI-5:IL01-IL03)
- Symposium CJ (CJ-2:IL01-L04)
(CJ-2:IL05-L07)
- Symposium CK (CK-1:IL13-L17)
(CK-1:IL19-L22)
- Symposium CL (CL-3:L03)
(CL-3:IL11-L14)
(CL-4:L06-L11)
- Conference CM (CM-2:IL06-L09)
(CM-3:IL02-IL04)
- Conference CN (CN-2:L03-IL05)
(CN-3:IL01-L04)

14.45-20.20 *Tour to Florence*

Special shuttle train reserved to CIMTEC participants
Meeting point: Montecatini Terme Central Railway Station
(Piazza Italia)
Meeting time: 14.45

Thursday June 10

Morning: 8.30-13.00

- Symposium CA (CA-3:IL01-L04)
(CA-4:IL02-IL04)
(CA-4:IL18)
- Symposium CB (CB-4:L06-L11)
(CB-6:IL01-L05)
(CB-7:IL04-IL06)
(CB-8:IL03)
(CB-11.3:IL05-L09)
(CB-12.3:IL01-L05)
- Symposium CD (CD-4:IL01-IL04)
(CD-4:IL05-L09)
- Symposium CE (CE-2:IL13-L15)
(CE-4:IL01-L05)
- Symposium CF (CF-3.1:IL01-L05)
(CF-4.3:IL01-L05)
- Symposium CG (CG-3:IL01-L04)
(CG-4:IL06-L09)
- Symposium CH (CH-3:IL10-IL12)
(CH-5:IL01-L06)
(CH-6.5:IL01-L04)
- Symposium CI (CI-5:IL04-IL05)
(CI-7:IL01-IL05)
(CI-8:IL02)
- Symposium CJ (CJ-2:IL09-L11)
(CJ-3:IL01-L04)
- Symposium CK (CK-2:IL01-L05)
(CK-2:IL06-L09)
- Symposium CL (CL-2:IL09-L12)
(CL-4:IL01-L05)
- Conference CM (CM-3:IL05-IL08)
(CM-4:IL01-IL04)
- Conference CN (CN-2:IL01)
(CN-4:IL01-IL07)

Afternoon: 15.00-20.00

- Symposium CA (CA-1:L21-L26)
(CA-3:IL06-L09)
(CA-4:L12-L15)
- Symposium CB (CB-2:IL02)
(CB-8:IL01-L05)
(CB-11.4:IL06-IL07)
(CB-12.2:IL04-L06)
- Symposium CC (CC-1:IL08-L12)
(CC-2:IL01-IL03)
- Symposium CE (CE-2:IL17-L19)
(CE-4:IL06-L09)
- Symposium CF (CF-3.1:L06-L09)
(CF-4.3:L06-L07)
- Symposium CG (CG-4:IL10-L14)
(CG-4:L15-L17)
- Symposium CH (CH-1:L12-L15)
(CH-2:L15-L19)
(CH-4:IL01-L10)
(CH-6.2:IL01-L02)
(CH-6.6:IL01-IL03)
- Symposium CJ (CJ-1:IL12-IL13)
(CJ-4:IL01-L03)
- Symposium CK (CK-2:L11-L14)
(CK-3:L11-L14)
- Conference CM (CM-4:IL05-L08)
(CM-4:L09-IL11)
- Conference CN (CN-5:IL01-L04)
(CN-6:IL01-IL02)

18.30-20.00
POSTER DISCUSSION

Friday June 11

Morning: 8.30-13.00

- Symposium CA (CA-4:IL17-L21)
(CA-5:L03-IL06)
- Symposium CB (CB-9:IL02-IL05)
(CB-10:IL01-IL03)
(CB-11.5:IL01-L04)
(CB-11.5:IL05-L07)
- Symposium CC (CC-2:IL04-IL08)
(CC-2:IL09-IL13)
- Symposium CE (CE-5:IL01-L05)
(CE-5:IL06-L09)
- Symposium CF (CF-4.2:IL06-L09)
(CF-4.2:L10-IL12)
- Symposium CG (CG-4:IL18-IL23)
(CG-4:IL24-L26)
- Symposium CH (CH-4:IL06-IL08)
(CH-5:IL07-L11)
(CH-6.6:IL05)
(CH-6.7:IL01-IL02)
(CH-6.7:IL03-IL06)
- Symposium CI (CI-6:IL01-L04)
(CI-8:IL01-IL06)
- Symposium CJ (CJ-3:IL05-L08)
(CJ-4:IL04-IL06)
- Symposium CK (CK-1:IL09)
(CK-3:IL01-L03)
(CK-3:L05-L10)
- Conference CM (CM-5:IL01-IL04)
(CM-5:IL06-IL09)
- Conference CN (CN-1:IL03)
(CN-5:IL05-L08)
(CN-6:IL03-IL05)

14.45-19.30

Tour to Pisa

Meeting point: Palazzo dei Congressi

Meeting time: 14.45

21.00-23.30

Conference Dinner

Lidò Le Panteraie

Via delle Panteraie, 26

SESSIONS FLOWSHEET

June 7-11

12th International Ceramics Congress

Chair

Pietro Vincenzini

World Academy of Ceramics
National Research Council, Italy

Co-Chair

Akio Makishima

International Ceramic Federation
Japan Advanced Institute of Science and Technology, Japan

Programme Chairs

Symposium CA: **Jean-François Baumard**, France

Symposium CB: **Ralf Riedel**, Germany

Focused Session CB-11: **Alexander G. Merzhanov**, Russia

Focused Session CB-12: **Juan Du**, Germany

Symposium CC: **Mark Hadfield**, UK

Symposium CD: **Alberto Passerone**, Italy

Symposium CE: **Sheldon Wiederhorn**, USA

Symposium CF: **Paolo Colombo**, Italy

Symposium CG: **Ghislain Montavon**, France

Symposium CH: **Vojislav V. Mitic**, Serbia

Focused Session CH-6: **Alois Loidl**, Germany

Symposium CI: **Dino Fiorani**, Italy

Symposium CJ: **Michele Dondi**, Italy

Symposium CK: **Cristina Leonelli**, Italy

Symposium CL: **James P. Bennett**, USA

Conference CM: **Maurizio Ferrari**, Italy

Conference CN: **Mrityunjay Singh**, USA

OPENING SESSION

AUDITORIUM

Chair:

Roman PAMPUCH, Poland

9.30 - 10.15

Welcome

P. VINCENZINI

General Chair CIMTEC Conferences

F. BAUMARD

President International Advisory Board
World Academy of Ceramics

A. MAKISHIMA

President International Ceramic Federation

10.15 - 10.45

Formal induction of the New Members of the
World Academy of Ceramics (13th Election)

Plenary Lectures

10.50 - 11.35

C:PL1

Nanoscience and Nanotechnology

S. IIJIMA

Faculty of Science and Technology, Meijo University, National
Institute of Advanced Industrial Science and Technology /
Nanotube Research Center, SAINT and NEC, Japan

11.35 - 12.20

C:PL2

Ceramics in New Energy Technologies

Y.-M. CHIANG

Dept. of Materials Science and Engineering, Massachusetts
Institute of Technology, Cambridge, MA, USA

12.20 - 13.05

C:PL3

Computer Modelling as a Tool in Materials Science

R. CATLOW

Department of Chemistry, University College London, UK

MONDAY JUNE 7 AFTERNOON

Session CA-1 - Powder Synthesis and Characterisation

Room: AUDITORIUM

Chair: F. BAUMARD, France (*Programme Chair*)

15.00 *Welcome*

15.10 *CA-1:IL01 Hydrothermal Synthesis of Functional Ceramic Particles*

J. HOJO, M. INADA, N. ENOMOTO, Dept. of Applied Chemistry, Kyushu University, Japan

15.40 *CA-1:IL02 Microemulsions as Reaction-Templates for the Synthesis of Novel Oxide-based Polar Electroceramics*

C. PITHAN, Institute for Solid State Research, Forschungszentrum Jülich GmbH, Jülich, Germany

16.10 *CA-1:IL04 Synthesis of Nitride (nano-)powders from Single-Source Preceramic Precursors: Potentialities as Building Blocks of Nitride Workpieces by Additive-free Sintering*

S. BERNARD¹, V. SALLES¹, S. FOUCAUD², A. MAÎTRE², P. MIELE¹,
¹Laboratoire des Multimateriaux et Interfaces (UMR CNRS 5615), Université Lyon1, Villeurbanne Cedex, France; ²SPCTS (UMR CNRS 6638), Faculté des Sciences et Techniques, Limoges, France

16.40 *Break*

Chair: J. HOJO, Japan

17.00 *CA-1:IL05 Convenient Hydrothermal Pathways to Functional Nanostructured Oxides: Methods, Mechanisms and Materials*
G.R. PATZKE, Institute of Inorganic Chemistry, University of Zurich, Switzerland

17.30 *CA-1:L08 Ceramic Matrix Composites in the Alumina/YAG System*

R. LACH, K. HABERKO, Faculty of Materials, AGH University of Science and Technology, Krakow, Poland

17.50 *CA-1:L09 New Route to Synthesize Silicon-substituted Hydroxyapatites*

M. ZYMELKA, D. MARCHAT, D. BERNACHE-ASSOLANT, LPMG Laboratory UMR 5148 (CIS Center), Ecole Nationale Supérieure des Mines, Saint-Etienne, France; J. CHEVALIER, MATEIS Laboratory UMR 5510, Institut National des Sciences Appliquées, Lyon, France

Session CB-1 - Soft Solution Processing

Room: LE PLEIADI

Chair: R. RIEDEL, Germany (*Programme Chair*)

15.00 *Welcome*

15.10 **CB-1:IL01 Soft Processing for Ceramics: Single-Step Fabrication of Nano-Structured Oxide Ceramics(Particles, Films, Integrated Layers and Patterns) from Solution without Firing**
M. YOSHIMURA, Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan

15.40 **CB-1:IL02 Novel Hydrothermal Solution Routes of Advanced Nanomaterials and Nanoceramics Processing**
K. BYRAPPA, DOS in Geology, University of Mysore, Mysore, India

16.10 **CB-1:IL03 Non-aqueous Sol-gel Routes to Metal Oxide Nanostructures**
N. PINNA, Dept. of Chemistry, CICECO, University of Aveiro, Aveiro, Portugal; World Class University (WCU) program of Chemical Convergence for Energy and Environment (C2E2), School of Chemical and Biological Eng., Seoul National University, Seoul, Korea

16.40 **CB-1:IL04 Liquid Phase Morphology Control of Metal Oxides in Aqueous Solutions**
Y. MASUDA, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

17.10 *Break*

Chair: M. YOSHIMURA, Japan

17.40 **CB-1:IL05 Granulation by Spray Freeze Drying and Pressing of Nano YSZ Powders**
J. BINNER, B. VAIDHYANATHAN, K. ANNAPOORANI, B. RAGHUPATHY, Dept. of Materials, Loughborough University, Loughborough, UK

18.10 **CB-1:IL06 New Synthesis Process of Li, Na and K Niobates from Metal Alkoxides**
Y. SUYAMA, Dept. of Materials Science, Shimane University, Matsue, Japan

18.40 **CB-1:IL07 Glycol-based Precursors in the Synthesis of Mesoscopically Organized and Porous Nanoparticles**
N. HUESING, Inorganic Chemistry, Ulm University, Ulm, Germany

19.10 **CB-1:IL07b Novel Sol-gel Synthesis of LiMn₂O₄ and Li_xNi_{1-x}Co_{1-x}O₂ Powders**
A. DEPTULA¹, W. LADA¹, T. OLCZAK¹, D. WAWSZCZAK¹, M. BRYKALA¹, F. ZAZA², K.C. GORETTA³, ¹Institute of Nuclear Chemistry and Technology (INCT), Warsaw, Poland; ²Italian National Agency for New Technologies, Energy and Environment (ENEA), CR Casaccia, Rome, Italy; ³Asian Office of Aerospace Research and Development, Tokyo, Japan

MONDAY JUNE 7 AFTERNOON

Session CB-11.1 - New Methods for Investigation of SHS

Room: ORSA MINORE

Chair: A.G. MERZHANOV, Russia (*Programme Chair*)

15.00 *Welcome*

15.10 *CB-11.1:IL01 "Solution Combustion" as a Promising Method for the Synthesis of Nanoparticles*

A.S. MUKASYAN, Dept. of Chem. & Biomolec. Eng., University of Notre Dame, Notre Dame, IN, USA

15.40 *CB-11.1:IL02 Thermal Explosion in the Synthesis of Ceramic Materials and Items*

I. GOTMAN, E.Y. GUTMANAS, Faculty of Materials Engineering, Technion-Israel Institute of Technology, Haifa, Israel

16.10 *CB-11.1:L03 Microwave Activated Combustion Synthesis and Compaction in Separate E and H Fields: Numerical Simulation and Experimental Results*

R. ROSA, P. VERONESI, C. LEONELLI, A.B. CORRADI, Dip. Ingegneria dei Materiali e dell'Ambiente, Univ. degli Studi di Modena e Reggio Emilia, Modena, Italy; **M. FERRARIS**, V. CASALEGNO, M. SALVO, H. SHAOHUA, Dip. Scienze dei Materiali ed Ingegneria Chimica, Politecnico di Torino, Torino, Italy

16.30 *Break*

Session CB-12.1 - Layered and Graded Materials, Composites and Hybrids

Room: ORSA MINORE

Chair: Juan DU, Germany (*Programme Chair*)

17.00 *Welcome*

17.10 *CB-12.1:IL01 The Potential of Spark Plasma Sintering (SPS) Method for the Fabrication on an Industrial Scale of Functionally Graded Materials (FGMs)*

M. TOKITA, NJS Co., Ltd., Yokohama, Japan

17.40 *CB-12.1:IL02 Comparison of Microwave and Conventional Sintering of LHA Ceramics and Functionally Graded Alumina-LHA Ceramics*

Z. NEGAHDARI, M. WILLERT-PORADA, Materials Processing, Faculty of Engineering Science, University of Bayreuth, Bayreuth, Germany

18.10 *CB-12.1:L04 Fabrication of Functionally Graded ZTA Ceramics Using a Novel Combination of Freeze Casting and Electrophoretic Deposition (EPD)*

A. PREISS, B. SU, Univ. of Bristol, Dept. Oral & Dental Science, Bristol, UK

MONDAY JUNE 7 AFTERNOON

Session CD-1 - Thermochemistry of Interface Formation and Mechanisms of Wetting and Adhesion

Room: ZENITH

Chair: A. PASSERONE, Italy (*Programme Chair*)

15.00 *Welcome*

15.10 **CD-1:IL01 Contribution to the Theory of Ceramics/liquid Metal System Wettability. A Peculiarity of Contact Processes for Transition and Non-transition Metals**

Y. NAIDICH, Institute for Materials Science Problems of the National Ukrainian Academy of Sciences, Kiev, Ukraine

15.40 **CD-1:IL02 Metal Ceramic Reactivity: Thermodynamics and Kinetics**

F. HODAJ, SIMAP-UMR CNRS 5266, Grenoble INP-UJF, Saint Martin d'Herès Cedex, France

16.10 **CD-1:IL03 Thermodynamic Evaluation of Interface Formation in Ceramic/Metal Systems. Boron Carbide/Metal Systems**

N. FRAGE^a, **M. AIZENSSTEIN^b**, **N. FROUMIN^a**, **M.P. DARIEL^a**, ^aDept. of Material Engineering, Ben-Gurion University, Beer-Sheva, Israel; ^bNRC-Negev, Beer-Sheva, Israel

16.40 **CD-1:IL04 Wetting of Ceramics by Molten Mg**

H. FUJII^{*}, **S. IZUTANI^{*}**, **S. KIGUCHI^{**}**, **K. NOGI^{*}**, ^{*}Joining and Welding Research Institute, Osaka University, Osaka, Japan; ^{**}Kinki University, Higashi-Osaka, Japan

17.10 *Break*

Chair: D. CHATAIN, France

17.40 **CD-1:IL05 From Reactive Wetting to Reactive Brazing**

N. EUSTATHOPOULOS, SIMaP, Grenoble-INP, Saint Martin d'Herès, France

18.10 **CD-1:IL06 Dynamic Wetting Problem in Thermal Spray Process**

M. FUKUMOTO, Toyohashi University of Technology, Toyohashi, Japan

18.40 **CD-1:L07 Improvement in Wettability by Ultrasound and its Application to Cast Joining**

Y. TSUNEKAWA, **M. OKUMIYA**, **Y. FURUKAWA**, Toyota Technological Institute, Nagoya, Japan

19.00 **CD-1:L08 Characterization and Performance of Glass-ceramic Sealants for SOECs**

H. KHEDIM¹, **A.J. CONNELLY¹**, **E. VERNET¹**, **H. NONNET¹**, **D. COILLOT²**, **L. BRUGUIÈRE¹**, ¹CEA, DEN, Marcoule, Bagnols-sur-Cèze Cedex, France; ²UCCS - Unité de Catalyse et Chimie du solide, UMR CNRS 8181, ENSC de Lille, Université des Sci. et Tech. de Lille, Villeneuve d'Ascq Cedex, France

MONDAY JUNE 7 AFTERNOON

Session CE-1 - Ultra High Temperature Ceramics

Room: **VENERE**

Chair: S. WIEDERHORN, USA (*Programme Chair*)

- 15.00 *Welcome*
- 15.10 **CE-1:IL01 Material Properties Improvement in Ultra High Temperature Ceramics via Microstructure Tailoring**
GUO-JUN ZHANG, State Key Lab. of High Performance Ceramics and Superfine Microstructures, Shanghai Institute of Ceramics, Shanghai, China
- 15.40 **CE-1:IL02 Ceramics for Aero propulsion Applications**
E.J. WUCHINA, M.M. OPEKA, Naval Surface Warfare Center, West Bethesda, MD, USA
- 16.10 **CE-1:L03 Oxidation Mechanism of ZrB₂-SiC in a Solar Furnace Above 2200 °C**
A.-S. ANDREANI¹, A. POULON-QUINTIN², F. REBILLAT¹,
¹Laboratoire des Composites Thermostructuraux, UMR 5801 CNRS-Snecma-CEA-UB1, Pessac, France; ²Institut de Chimie de la Matière Condensée de Bordeaux, CNRS UPR 9048, Pessac, France
- 16.30 **CE-1:L04 Measurements of Cation and Anion Diffusion in Aluminum Oxide with ToF-SIMS**
T. NAGAKAWA, National Institute for Materials Science, Tsukuba, Japan; **J.D. McGUFFIN-CAWLEY**, A.H. HEUER, Case Western Reserve University, Cleveland, OH, USA
- 16.50 **CE-1:L05 Oxidation of ZrB₂ Ceramics with Tungsten Carbide Additions**
SHI C. ZHANG, GREG E. HILMAS, WILLIAM G. FAHRENHOLTZ, Dept. of Materials Science and Engineering, Missouri University of Science and Technology, Rolla, MO, USA
- 17.10 *Break*

Session CE-3 - Precursor Derived Ceramics

Room: **VENERE**

Chair: E.J. WUCHINA, USA

- 17.40 **CE-3:IL02 Characterization of Polymer-Derived Ceramics via Transmission Electron Microscopy**
H.-J. KLEEBE, Technische Universität Darmstadt, Institute for Applied Geosciences, GeoMaterial Science, Darmstadt, Germany
- 18.10 **CE-3:L03 Development of Zirconia-toughened Mullite Matrix Composites from a Nano-filled Pre ceramic Polymer**
E. BERNARDO, **G. PARCIANELLO**, P. COLOMBO, University of Padova, Padova, Italy
- 18.30 **CE-3:L04 High-temperature Behavior of Novel SiOC/HfO₂ Ceramic Nano-composites at T >> 1000 °C**
B. PAPENDORF, E. IONESCU, R. RIEDEL, Inst. für Materialwissenschaft, Technische Universität Darmstadt, Darmstadt, Germany; **H.J. KLEEBE**, **K. NONNENMACHER**, Inst. für Geowissenschaft, Technische Universität Darmstadt, Darmstadt, Germany
- 18.50 **CE-3:IL01 New Precursors for Synthesis of High Temperature Ceramics**
CAIHONG XU, Institute of Chemistry, Chinese Academy of Sciences, Beijing, China

MONDAY JUNE 7 AFTERNOON

Session CF-1 - Ceramics in Chemical and Biochemical Sensors

Room: ALBA 2

Chair: P. COLOMBO, Italy (*Programme Chair*)

15.00 *Welcome*

15.10 *CF-1:IL01* **Effective Designs for High Temperature Ceramic Gas Sensors**

P.K. DUTTA, Dept. of Chemistry, The Ohio State University, Columbus, OH, USA

15.40 *CF-1:IL02* **VOCs Detection with Potentiometric Oxygen Sensor with Modified Pt Electrode**

Y. SADAOKA, Dept. of Materials Science and Biotechnology, Graduate School of Science and Engineering, Ehime University, Matsuyama, Japan

16.10 *CF-1:IL03* **Plasmonic Based Harsh Environment Compatible Chemical Sensor**

M.A. CARPENTER, College of Nanoscale Science and Engineering, University at Albany, NY, USA

16.40 *Break*

Sub-session CF-3.2 - Catalysts Supports

Room: ALBA 2

Chair: A.C. PIERRE, France

17.10 *CF-3.2:IL01* **Effect of Oxides Composite Support of Ce(Sm)O₃-La(Sr)CrO₃ on Pd-Ni Alloy for Decomposition Activity of CH₄**

I. YAMANAKA, Y. NABAE, Tokyo Institute of Technology, Dept. of Applied Chemistry, Tokyo Institute of Technology, Tokyo, Japan

17.40 *CF-3.2:IL02* **Soot and Ash Layer Characteristics in Ceramic Diesel Particulate Filters**

P. DIMOPOULOS EGGENSCHWILER, A. LIATI, Empa, Swiss Federal Laboratories for Materials Testing and Research, Laboratory for I.C. Engines, Duebendorf, Switzerland

18.10 *CF-3.2:IL03* **VOCs Oxidation on CeO₂-based Catalysts**

T. MASUI, M. IMANAKA, Dept. of Applied Chemistry, Osaka University, Suita, Osaka, Japan

18.40 *CF-3.2:IL04* **TiO₂ Photocatalysis - Fundamental and Recent Situation**

A. FUJISHIMA, Kanagawa Academy of Science and Technology, Kawasaki, Kanagawa Pref., Japan

19.10 *CF-3.2:L05* **Foam-supported Catalysts Tailored for Industrial Steam Reforming Processes**

R. FAURE, T. CHARTIER, F. ROSSIGNOL, SPCTS UMR CNRS 6638, Limoges, France; F. BASILE, I. BERSANI, A. VACCARI, University of Bologna, Bologna, Italy; A. CUNI, M. CORNILLAC, P. DEL GALLO, D. GARY, Air Liquide CRCD, Jouy-en-Josas, France

MONDAY JUNE 7 AFTERNOON

Session CG-1 - Advances in Deposition, Surface Modification and Characterisation

Room: URANO

Chair: G. MONTAVON, France (*Programme Chair*)

15.00 *Welcome*

15.10 *CG-1:IL01 Recent Developments in Thermal Spray Processes*
P. FAUCHAIS, SPCTS, UMR 6638, University of Limoges, Limoges, France

15.40 *CG-1:IL02 New Horizons for Ceramic Coatings and Films Produced by Plasma Electrolytic Processes*
A. YEROKHIN, A. MATTHEWS, Dept. of Engineering Materials, University of Sheffield, Sheffield, UK

16.10 *CG-1:IL03 Recent Achievements in Laser Cladding Technologies*
P. VUORISTO, Dept. of Materials Science, Tampere University of Technology, Tampere, Finland

16.40 *CG-1:L05 Cold Spray Deposition of TiO₂ Nanostructured Particles*
M. YAMADA*, H. ISAGO**, K. SHIMA**, H. NAKANO*, M. FUKUMOTO*, *Toyohashi University of Technology; **Graduate student, Toyohashi University of Technology, Toyohashi, Japan

17.00 *Break*

Chair: P. FAUCHAIS, France

17.30 *CG-1:IL06 A New High Speed and Low Temperature Coating by Laser Chemical Vapor Deposition*
T. GOTO, Institute for Materials Research, Tohoku University, Sendai, Japan

18.00 *CG-1:IL07 3-D Static and Time-dependent Modeling of RF and DC Thermal Plasmas for Industrial Applications*
V. COLOMBO, E. GHEDINI, P. SANIBONDI, Dept. of Mechanical Engineering, University of Bologna, Bologna, Italy

18.30 *CG-1:L08 Fabrication, Structural and Mechanical Properties of Aluminium Oxide Thick Films Using Aerosol Deposition*
S. HIROSE, Y. EZUKA, N. SAKAMOTO, S. OH, J-H. PARK, J. AKEDO, AIST, Tsukuba, Japan

18.50 *CG-1:L09 A Comparison Between Conventional Thermal Treatment and Excimer Laser Irradiation Performed on Alumina/PEEK Composite Coatings*
M.F. DE RICCARDIS, V. MARTINA, D. CARBONE, R. TERZI, ENEA, Brindisi Research Centre, Brindisi, Italy; A.P. CARICATO, G. LEGGIERI, Dipartimento di Fisica, Università del Salento, Lecce, Italy

MONDAY JUNE 7 AFTERNOON

Session CH-1 - Dielectric of Microwave Materials

Room: SIRIO

Chair: V. MITIC, Serbia (*Programme Chair*)

15.20 *Welcome*

15.30 **CH-1:IL01 Microwave Dielectric Ceramics for Resonators and Filters in Mobile Phone Networks**

I.M. REANEY, Dept. of Eng. Materials, University of Sheffield, Sheffield, UK

16.00 **CH-1:IL02 Carbon Nanotube Cathodes as Electron Sources for Microwave Amplifiers**

P. LEGAGNEUX, Nanocarb, Thales-Ecole Polytechnique, Palaiseau, France

16.30 **CH-1:IL04 Miniature Ceramic Antennas for Wireless Applications**

Z.D. MILOSAVLJEVIC, Pulse Finland Oy, Kempele, Finland

17.00 *Break*

Chair: I.M. REANEY, UK

17.30 **CH-1:IL05 Local Structure in Perovskite-like Dielectrics**

I. LEVIN, Ceramic Division, NIST, Gaithersburg, MD, USA

18.00 **CH-1:IL06 Aerosol Deposition Process for Fabrication of Dielectric Layer**

J. AKEDO, D. POPOVICI, M. SUZUKI, Y. IMANAKA, T. TSURUMI, AIST, Tsukuba, Ibaraki, Japan

18.30 **CH-1:IL07 Reducing the Dielectric Losses in Heterostructured Ferroelectric Materials**

C. ELISSALDE¹, C. ESTOURNES², D. BERNARD¹, U.C. CHUNG¹, S. MORNET¹, R. COSTES³, M. MAGLIONE¹, ¹ICMCB-CNRS, Université Bordeaux, Pessac, France; ²CIRIMAT et Plateforme Nationale CNRS de Frittage Flash, PNF2 MHT, Université Paul Sabatier, Toulouse, France; ³Thales Research and Technology, Palaiseau Cedex, France

MONDAY JUNE 7 AFTERNOON

Session CH-6.1 - Theory and Modeling of Materials and Phenomena

Room: ORSA MAGGIORE

Chair: A. LOIDL, Germany (*Programme Chair*)

15.00 *Welcome*

15.10 **CH-6.1:IL01 Dynamical Magnetoelectric Effects in Multiferroic Oxides**

Y. TOKURA, Dept. of Applied Physics, University of Tokyo; ERATO Multiferroics Project, JST, Japan

15.40 **CH-6.1:IL02 Symmetry and Mechanisms for Magnetically Driven Ferroelectricity**

J.L. RIBEIRO, Depto de Fisica, Universidade do Minho, Braga, Portugal

16.10 **CH-6.1:IL03 First Principles Study of the Magneto-electric Coupling and Phase Diagrams of Multiferroic RMn₂O₅**

LIXIN HE, Key Lab. of Quantum Information, University of Science and Technology of China, Hefei, China

16.40 *Break*

Chair: J.L. RIBEIRO, Portugal

17.10 **CH-6.1:IL04 Magnetic Switching of Relaxor Ferroelectrics: Theory**

R. PIRC, R. BLINC, J. Stefan Institute, Ljubljana, Slovenia; **J.F. SCOTT**, Cavendish Laboratory, Cambridge, UK

17.40 **CH-6.1:IL05 Ferroelectric and Multiferroic Tunnel Junctions: Insight from Theory**

E.Y. TSYMBAL, Dept. of Physics and Astronomy, University of Nebraska, Lincoln, Nebraska, USA

18.10 **CH-6.1:IL06 Static and Dynamic Magnetoelectric Effects in Magnets with Non-collinear Spin Orders**

M. MOSTOVOY, Zernike Institute for Advanced Materials, University of Groningen, Groningen, The Netherlands

18.40 **CH-6.1:IL07 Probing Chirality in Multiferroic Manganite Perovskites**

D.N. ARGYRIOU, E. WESCHKE, E. SCHIERLE, Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany

MONDAY JUNE 7 AFTERNOON

Session CI-1 - CMR Manganites

Room: GIOVE

Chair: D. FIORANI, Italy (*Programme Chair*)

15.20 *Welcome*

15.30 *CI-1:IL01 Emergent Phenomena in Complex Oxides under Spatial Confinement*

T.Z. WARD¹, **JIAN SHEN**^{1,2}, ¹Materials Sciences and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA; ²Dept. of Physics, Fudan University, Shanghai, China

16.00 *CI-1:IL02 Bilayer Manganites: Neutron Scattering Studies*

T. CHATTERJI, JCMS, FZ Juelich outstation at Institut Laue-Langevin, Grenoble, France

16.30 *CI-1:IL03 Charge Ordering and Related Phenomena of Manganites on Nano-scale*

INDRANIL DAS, Saha Institute of Nuclear Physics, Experimental Condensed Matter Physics Division, Kolkata, India

17.00 *Break*

Chair: T. CHATTERJI, France

17.30 *CI-1:IL04 Interface Magnetism in Complex Oxide Heterostructures and Nanostructures*

H. SRIKANTH, Dept. of Physics, University of South Florida, Tampa, FL, USA

18.00 *CI-1:IL05 Many Faces of Photoinduced Phases in CMR Manganites*

K. MIYANO, RCAST, University of Tokyo, Tokyo, Japan

18.30 *CI-1:L06 Self-adaptative Composition Modulation in Strained Manganite Thin Films*

J. FONTCUBERTA, **I.C. INFANTE**, **F. SANCHEZ**, Institut de Ciència de Materials de Barcelona-CSIC, Bellaterra, CAT, Spain; **S. ESTRADA**, **J. ARBIOL**, **F. PEIRÒ**, EME/CeRMAE/IN2UB, Dept. d'Electronica, Universitat de Barcelona, Barcelona, CAT, Spain; **F. DE LA PENA**, **M. WALLS**, **C. COLLIEX**, Lab. de Physique des Solides, (UMR CNRS 8502), Université Paris Sud, Orsay, France; **M. WOJCIK**, **E. JEDRYKA**, Inst. of Physics, Polish Academy of Sciences, Warszawa, Poland

MONDAY JUNE 7 AFTERNOON

Session CJ-1 - Science of Silicate Ceramics

Room: **SMERALDO 1**

Chair: M. DONDI, Italy (*Programme Chair*)

15.00 *Welcome*

15.10 *CJ-1:IL01 New Silicate Glass-ceramic Materials and Composites*
D. HOTZA, A.P. NOVAES DE OLIVEIRA, Group of Ceramic and Glass Materials (CERMAT), Dept. of Mechanical Engineering (EMC), Federal University of Santa Catarina (UFSC), Florianópolis, SC, Brazil

15.40 *CJ-1:IL02 Characterisation of Microstructure and Crystallographic Texture of Ceramics*
D. CHATEIGNER, CRISMAT-ENSICAEN, IUT-Caen, Université de Caen Basse-Normandie, Caen, France

16.10 *CJ-1:IL03 Effect of Compositional Modification on Sintering Behaviour and Microstructures of Porcelain Tiles*
F. KARA, A. KARA, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey; **P. DAG**, Seramik Arastirma Merkezi, Teknoloji Gelistirme Bolgesi, Eskisehir, Turkey; **M. TUNA**, Kutahya Seramik, Kutahya, Turkey; **H. KIRAN**, Ege Seramik, Izmir, Turkey

16.40 *Break*

Symposium CK - Geopolymers and Geocements

Room: **SMERALDO 1**

Chair: C. LEONELLI, Italy (*Programme Chair*)

17.00 *Welcome*

17.10 *Keynote Lecture*

CK:KL Status and Prospects of Research and Application of Alkali-activated Materials
P.V. KRIVENKO, Kiev, Ukraine

Session CK-1 - Preparation

17.50 *CK-1:IL01 Synthesis Routes of Novel Inorganic Polymer and Geopolymer-type Materials*
K.J.D. MacKENZIE, MacDiarmid Inst. for Advanced Materials and Technology, Victoria University of Wellington, Wellington, New Zealand

18.20 *CK-1:IL02 Preparation of Geopolymeric Materials from Swage Sludge Slag, a Novel Active Filler*
N. YAMAGUCHI, Ceramic Research Center of Nagasaki, **K. IKEDA**, Prof. Emeritus of Yamaguchi University, Ube, Japan

MONDAY JUNE 7 AFTERNOON

Symposium CL - Refractories

Room: **SMERALDO 3**

Chair: J.P. BENNETT, USA (*Programme Chair*)

15.00 *Welcome*

15.10 *Keynote Lecture*

CL:KL The Federation for International Refractories Research and Education (FIRE): Progress and Outcome on Research, Education and Industrial Partnership

M. RIGAUD, Professor Emeritus, University of Montreal, Canada

Session CL-1 - Raw Materials

15.50 **CL-1:IL01 Reactive Oxide Micropowders and Chemical Additives for Refractory Castables**

C. PARR, **G. ASSIS**, **CH. WÖHRMEYER**, **H. FRYDA**, Kerneos S.A., Neuilly sur Seine, France

16.10 **CL-1:IL02 Synthesis of Carbide Ceramic Powders by Carbothermal Reduction of Organic Precursors**

T. NISHIMURA, **H. TANAKA**, **N. HIROSAKI**, National Institute for Materials Science, Tsukuba, Ibaraki, Japan; **S. ISHIHARA**, Nagoya Institute of Technology, Nagoya, Aichi, Japan; **J.-S. LEE**, Hanyang University, Seoul, Republic of Korea; **S.-H. LEE**, Korea Institute of Materials Science, Changwon, Gyeongnam, Republic of Korea

16.40 **CL-1:IL03 The Phase Equilibrium Diagrams as a Tool for the Design and Use of Refractories**

A.H. DE AZA, Instituto de Ceramica y Vidrio (ICV) - CSIC, Madrid, Spain

17.10 *Break*

Session CL-2 - Testing

Chair: **M. RIGAUD**, Canada

17.40 **CL-2:IL01 Testing Procedures for Postmortem Analyses on Refractories Used in Non-Ferrous Furnaces**

G. OPREA, Materials Engineering, University of British Columbia, Vancouver, BC, Canada

18.10 **CL-2:IL02 How to Enhance Strain to Rupture of Refractory Materials for Thermal Shock Applications?**

M. HUGER¹, **T. OTA**², **N. TESSIER-DOYEN**¹, **T. CHOTARD**¹, **P. MICHAUD**¹, ¹Groupe d'Etude des Matériaux Hétérogènes (GEMH), ENSCI, Limoges, France; ²Nagoya Institute of Technology, Nagoya, Aichi, Japan

18.40 **CL-2:L03 Thermo Mechanical Comparison Between SFRC With No Cement and a Similar Ultra Low Cement Castable**

A.P. SILVA, **D.G. PINTO**, **T.C. DEVEZAS**, Dept. Electromechanical Eng. (CAST), University of Beira Interior, Covilha, Portugal; **A.M. SEGADAES**, Dept. Ceramics and Glass Eng. (CICECO), University of Aveiro, Aveiro, Portugal

19.00 **CL-2:L04 Fracture Resistance Investigations of Refractory Materials**

G. GOGOTSI, Pisarenko Institute for Problems of Strength, Kiev, Ukraine

MONDAY JUNE 7 AFTERNOON

Session CM-1 - Nanomaterials and Systems at Nanoscale

Room: **SMERALDO 2**

Chair: M. FERRARI, Italy (*Programme Chair*)

15.00 *Welcome*

15.10 *CM-1:IL02* **Synthesis of Nanoparticles of Rare-earth Doped Fluorides**

M. MORTIER, P. GREDIN, LCMCP-CNRS, Chimie ParisTech and UPMC, Paris, France; G. PATRIARCHE, LPN-CNRS, Marcoussis, France; L. AIGOUY, LPEM-CNRS, ESPCI ParisTech, Paris, France

15.40 *CM-1:IL03* **Nanogaps for Sensing**

F. FAVIER, Institut Charles Gerhardt Montpellier, UMR 5253 CNRS, Université Montpellier 2, Montpellier, France

16.10 *CM-1:IL04* **Nanopatterns and Nanomaterials: Synthesis, Characterization and Applications**

HUA ZHANG, School of Materials Science and Engineering, Nanyang Technological University, Singapore

16.40 *Break*

Chair: HUA ZHANG, Singapore

17.10 *CM-1:IL05* **Tailoring Chemomechanical Interface Properties: A Nanomolecular Approach**

G. RAMANATH, Materials Science and Engineering Dept. and New York State Center for Future Energy Systems Rensselaer Polytechnic Institute, Troy, NY, USA

17.40 *CM-1:L07* **Processing and Characterization of Multi-Walled Carbon Nanotube - Alumina Ceramic Matrix Composites**

M. ESTILI, A. KAWASAKI, Dept. of Materials Processing, Graduate School of Engineering, Tohoku University, Sendai, Japan

18.00 *CM-1:IL06* **Morphology-Controlled Synthesis of Inorganic Nanostructures**

L. GAO, State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, CAS, Shanghai, China

TUESDAY JUNE 8 MORNING

Session CA-1 - Powder Synthesis and Characterisation

Room: AUDITORIUM

Chair: S. BERNARD, France

- 9.00 *CA-1:IL10* **Different Approaches for the Synthesis of Nanometric and Nanorods of Sr-doped LaPO₄**
M.T. COLOMER, Instituto de Ceramica y Vidrio, CSIC, Madrid, Spain
- 9.30 *CA-1:IL11* **Flame Synthesis of Ceramic Particles**
Y. TAKAO, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan
- 10.00 *CA-1:L12* **Detection Limit of XRD Phase Quantification**
N. DOEBELIN, M. BOHNER, RMS Foundation, Bettlach, Switzerland
- 10.20 *CA-1:L13* **One-step, Low-temperature, Microwave Assisted Synthesis of Barium Titanate Nanocrystalline Powders of Tunable Size**
S.A. VELDHUIS, T.M. STAWSKI, J.E. TEN ELSHOF, O.F. GÖBEL, D.H.A. BLANK, University of Twente, Inorganic Materials Science Group, AE Enschede, The Netherlands
- 10.40 *Break*

Session CA-2 - Colloidal Processing

Room: AUDITORIUM

Chair: K. SATO, Japan

- 11.10 *CA-2:IL02* **Development of Environmentally-friendly Process Using Ceramic Colloidal Processing on Ceramic-polymer Composite Materials**
Y. HOTTA, K. SATO, K. WATARI, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan
- 11.40 *CA-2:L04* **Experimental and Simulation Study of Self-arrangement by Heteroagglomeration in Dilute, Model Ceramic Suspensions**
M.A. PIECHOWIAK, A. VIDECOQ, C. PAGNOUX, F. ROSSIGNOL, SPCTS, ENSCI, Limoges, France; R. FERRANDO, M. CERBELAUD, Dipartimento di Fisica, Universita di Genova, Genova, Italy
- 12.00 *CA-2:L05* **A Study of the Dispersion of Boron Carbide in an Aqueous Suspension**
A.C.J. HEATON, DSTL, Porton Down, Wiltshire, UK; J.G.P. BINNER, Loughborough University, Leicestershire, UK; R.N.J. TAYLOR, AWE, Aldermaston, Berkshire, UK

TUESDAY JUNE 8 MORNING

Session CB-3 - Polymer-based Processing

Room: LE PLEIADI

Chair: P. MIELE, France

- 9.00 *CB-3:IL01* **Quo Vadis Polymer-derived Ceramics? Novel Insights in Basic Science and Applications**
R. RIEDEL, Darmstadt Technical University, Darmstadt, Germany
- 9.30 *CB-3:IL02* **Processing of SiCO from Polysiloxane-based Preceramic Polymers**
G.D. SORARU, Dip. Ingegneria dei Materiali, Università di Trento, Trento, Italy
- 10.00 *CB-3:IL03* **Fabrications of Bulk Si-Based Ceramics and Nanofiber Composites from Polymer Pyrolysis**
YA-LI LI, HUA FAN, XIANG LIU, TIAN LIANG, HE-BAO DU, FENG HOU, Key Lab. of Advanced Ceramic and Machining Technology, Ministry of Education of China, School of Matls Science and Eng., Tianjin University, Tianjin, P.R. China
- 10.30 *Break*

Chair: D.K. AGRAWAL, USA

- 11.00 *CB-3:IL04* **Electronic Behavior of Polymer-derived Ceramics**
LINAN AN, Advanced Materials Processing and Analysis Center, University of Central Florida, Orlando, FL, USA
- 11.30 *CB-3:L05* **Nanostructured Boron- and Silicon-based Mesoporous Materials via Preceramic Polymer Nanocasting**
X.-B. YAN, **P. DIBANDJO**, **O. MAJOULET**, **J. ALAUZUN**, **S. BERNARD**, **P. MIELE**, LMI - UMR 5615, Université Lyon 1, Villeurbanne Cedex, France
- 11.50 *CB-3:L06* **Shaping of Ceramic Fibers and Gradient Porosity Ceramic Bulk Materials Applying UV Curable Dispersions**
T. GRAULE, **J. HEINECKE**, **G. MUELLER**, **Y. DE HAZAN**, EMPA, Swiss Federal Laboratories for Materials Testing and Research, Laboratory for High Performance Ceramics, Dübendorf, Switzerland
- 12.10 *CB-3:L08* **Synthesis and Characterization of Polycarbosilanes as SiC-based Ceramic Precursors: Applications to Hybrid Material for the Preparation of ZrC-SiC Composites**
D. PIZON, **R. LUCAS**, **S. FOUCAUD**, **A. MAÎTRE**, Laboratoire Science des Procédés Céramiques et de Traitements de Surface - UMR CNRS 6638 - Université de Limoges, Limoges Cedex, France

TUESDAY JUNE 8 MORNING

Session CB-10 - Other Nontraditional Processing Routes

Room: ORSA MAGGIORE

Chair: D.A. SCHIRALDI, USA

- 9.00 *CB-10:L04* **Chemical Approaches to Functional Nanostructures: Growth, Applications and Devices**
S. MATHUR, Institute of Inorganic and Materials Chemistry, University of Cologne, Cologne, Germany
- 9.20 *CB-10:L05* **Sintering and Mechanical Properties of Silicon Carbide Composites with In-situ Converted Titanium Oxide to Titanium Carbide**
D. AHMOYE, V.D. KRSTIC, Queen's University, Kingston, Canada
- 9.40 *CB-10:L06* **Processing of Municipal Solid Waste (MSW) Fly Ash into an Environmentally Stable and Safe Material**
M. ISAC, R.I.L. GUTHRIE, Z. GHOULEN, McGill University, McGill Metals Processing Centre (MMPC), Montreal, Canada
- 10.00 *Break*

Session CB-4 - Spark Plasma Synthesis and Processing

Room: ORSA MAGGIORE

Chair: S. MATHUR, Germany

- 10.30 *CB-4:IL01* **Modelling of Spark Plasma Sintering Process**
E. OLEVSKY, Dept. of Mechanical Engineering, San Diego University, San Diego, CA, USA
- 11.00 *CB-4:IL02* **Shaping of Nanostructured Materials or Coatings Through Spark Plasma Sintering**
C. ESTOURNÈS¹, D. OQUAB², M. BOIDOT², D. MONCEAU², D. GROSSIN², C. DROUET², U-CHAN CHUNG³, F. ROULLAND^{1,3}, C. ELISSALDE³, M. MAGLIONE³, R. CHAIM⁴, PH. MIELE⁵, J. GURT-SANTANACH⁶, A. WEIBEL⁶, A. PEIGNEY⁶, CH. LAURENT⁶, ¹CNRS, Institut Carnot Cirimat, Toulouse, France; ²Université de Toulouse, UMR CNRS-UPS-INP 5085, CIRIMAT, INPT-ENSIACET, Toulouse, France; ³ICMCB-CNRS, Université Bordeaux, Pessac, France; ⁴Dept. of Materials Engineering, Technion-Israel Institute of Technology, Haifa, Israel; ⁵LMI, UMR CNRS 5615, Université Claude Bernard-Lyon 1, Villeurbanne, France; ⁶Université de Toulouse, UMR CNRS-UPS-INP 5085, CIRIMAT, Université Paul-Sabatier, Toulouse, France
- 11.30 *CB-4:IL03* **Synthesis of Fine-grained Transparent Oxide Ceramics by Spark-plasma Sintering under Low Heating Rate Control**
B.-N. KIM, National Institute for Materials Science, Tsukuba, Japan
- 12.00 *CB-4:L04* **Densification Mechanism of MgAl₂O₄ Spinel during Spark-plasma-sintering**
K. MORITA, B.-N. KIM, H. YOSHIDA, K. HIRAGA, National Institute for Materials Science, Nano-Ceramics Center, Ibaraki, Japan
- 12.20 *CB-4:L05* **Effect of CeO₂ Addition on the Mechanical Properties of Al₂O₃-ZrO₂ Ceramics Prepared by Spark Plasma Sintering**
E. YILMAZ, O. ORMANCI, I. AKIN, F. SAHIN, O. YUCEL, G. GOLLER, Istanbul Technical University, Metallurgical and Matls Eng. Dept, Istanbul, Turkey

TUESDAY JUNE 8 MORNING

Session CB-11.2 - Fundamentals of SHS

Room: ORSA MINORE

Chair: A.S. MUKASYAN, USA

- 9.00 *CB-11.2:IL01* **Use of Electrothermal Explosion and Electrothermal Analyzer (ETA-100) for the Study of Kinetics of Fast High-Temperature Reactions in SHS-Ceramic Systems**
A.S. SHTEINBERG, ALOFT, Berkeley, CA, USA; **A.A. BERLIN**, Semenov Institute of Chemical Physics, RAS, Moscow, Russia
- 9.30 *CB-11.2:IL02* **Mechanoactivation of SHS Systems and Process**
V.V. KURBATKINA, E.A. LEVASHOV, National University of Science and Technology "MISIS", Moscow, Russia; **A.S. ROGACHEV**, Institute of Structural Microkinetiks and Materials Science, Chernogolovka, Moscow region, Russia
- 10.00 *CB-11.2:L04* **Simulation of Gasless Combustion of Mechanically Activated Solid Powder Mixtures**
S. RASHKOVSKIY, Inst. for Problems in Mechanics of RAS, Moscow, Russia
- 10.20 *Break*

Session CB-12.1 - Layered and Graded Materials, Composites and Hybrids

Room: ORSA MINORE

Chair: M. TOKITA, Japan

- 10.50 *CB-12.1:IL06* **Functionally Graded Materials (FGM) and Spark Plasma Sintering (SPS)**
M.P. DARIEL, Ben-Gurion University of the Negev, Dept. of Materials Eng., Beer-Sheva, Israel
- 11.20 *CB-12.1:IL07* **Effects of Strain-graded Plastic Deformation on Mechanical Properties of Metals**
K. MATSUURA, M. OHNO, Division of Matls Science and Engrg, Hokkaido University, Sapporo, Hokkaido, Japan
- 11.50 *CB-12.1:L08* **CMC with a Graded Lay-up Manufactured via LSI-process**
M. FRIESS, C. ZUBER, B. HEIDENREICH, German Aerospace Center (DLR), Inst. of Structures and Design, Stuttgart, Germany
- 12.10 *CB-12.1:L09* **High Reliability Alumina-silicon Carbide Laminated Composites**
F. DE GENUA, V.M. SGLAVO, DIMTI, University of Trento, Trento, Italy
- 12.30 *CB-12.1:L10* **Control of Crystallographic Orientation in Alumina Laminate Using EPD in a Strong Magnetic Field**
T.S. SUZUKI, T. UCHIKOSHI, Y. SAKKA, National Institute for Materials Science, Tsukuba, Ibaraki, Japan

TUESDAY JUNE 8 MORNING

Room: ZENITH

Chair: G. PEZZOTTI, Japan

Session CD-1 - Thermochemistry of Interface Formation and Mechanisms of Wetting and Adhesion

- 8.30 *CD-1:IL09* **In-situ HRTEM Observations of Spreading Reactive Molten Alloy on Ceramic Substrates**
C. IWAMOTO, Dept. of Mechanical Eng., Kumamoto University, Kumamoto, Japan; S.-I. TANAKA, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan
- 8.50 *CD-1:IL10* **The Effect of Surface Adsorption on Substrate Wetting by Thermally Sprayed Particles**
M.M. HYLAND, A.T.T. TRAN, Dept. of Chemical and Materials Engineering, University of Auckland, New Zealand

Session CD-2 - Theory, Modelling and Simulation of Interface Interactions

- 9.20 *CD-2:IL01* **Modeling the Effects of Surface Segregation on the Equilibrium Shape of FCC Alloy Crystals**
D. CHATAIN, CINA-M- CNRS, Aix Marseille University, Marseille, France; P. WYNBLATT, Dept. of Materials Science, Carnegie Mellon University, Pittsburgh PA, USA
- 9.50 *CD-2:IL02* **Thermo-chemical Design of Brazed Diamond-metal Joints**
C. LEINENBACH, J. WANG, S. BUHL, M. ROTH, EMPA - Swiss Federal Labs for Materials Testing and Research, Laboratory of Joining and Interface Technology, Dübendorf, Switzerland
- 10.20 *CD-2:IL03* **First-principles Theory and Atomistic Simulation of the Formation, Structure, and Stability of Incoherent Metal/ceramic Interfaces**
A. HASHIBON¹, C. ELSAESSER¹, P. GUMBSCH^{1, 2}; ¹Fraunhofer IWM, Freiburg, Germany; ²IZBS, University of Karlsruhe, Germany
- 10.50 *Break*

Chair: A.M. GLAESER, USA

Session CD-3 - Advances in Joining Methods and Materials

- 11.20 *CD-3:IL01* **Ultrarapid Transient-liquid-phase Bonding of Advanced Ceramics**
S.M. HONG, C.C. BARTLOW, T.B. REYNOLDS, N. SAITO, A.M. GLAESER, Dept. of Matls Science and Eng., University of California, Berkeley, CA, USA
- 11.50 *CD-3:IL02* **Joining Ultra-high-temperature Materials: Ceramic/Metal Interfaces in Reactive Brazes**
J.E. INDACOCHEA, O. QUINTANA, Civil and Matls Eng. Dept., University of Illinois at Chicago, Chicago, IL, USA
- 12.20 *CD-3:IL03* **Development of Joining Technique for SiC/SiC Composite Component Utilizing NITE Process**
T. HINOKI, Y.H. PARK, S. KONISHI, Kyoto University, Uji, Kyoto, Japan

TUESDAY JUNE 8 MORNING

Session CE-1 - Ultra High Temperature Ceramics

Room: **VENERE**

Chair: G. MOTZ, Germany

- 9.00 *CE-1:IL11* **ZrB₂-Based Ceramics for Ultra-High Temperature Applications**
W.G. FAHRENHOLTZ, G.E. HILMAS, Missouri University of Science and Technology, Rolla, MO, USA
- 9.30 *CE-1:L13* **Creep of Single Crystal ZrB₂ Using Non-contacting Methods**
R.W. HYERS, University of Massachusetts, Amherst, MA, USA; R.P. AUNE, K.W. WHITE, Dept. of Mechanical Engineering, University of Houston, Houston, TX, USA
- 9.50 *CE-1:L14* **Ultra-high Temperature Ceramics Containing TaSi₂: Production, Microstructure Characterization, Mechanical and Oxidation Properties**
L. SILVESTRONI, D. SCITI, CNR-ISTEC, Institute of Science and Technology for Ceramics, Faenza, Italy
- 10.10 *CE-1:L15* **Oxidation Behaviour of HfB₂ Based Ceramics at Intermediate (~1600 °C) and Ultra High (~3000 °C) Temperatures**
D. DONI JAYASEELAN^a, P. BROWN^b, W.E. LEE^a, ^aStructural Ceramics Centre, Dept. of Materials, Imperial College London, UK; ^bDstl, Porton Down, Salisbury, Wiltshire, UK
- 10.30 *CE-1:L16* **Titanium Carbide Reinforced Composite Ceramic Tools Based on Alumina**
M. SZUTKOWSKA, B. SMUK, The Institute of Advanced Manufacturing Technology, Cracow, Poland; M. BONIECKI, The Institute of Electronic Materials Technology, Warsaw, Poland
- 10.50 *Break*

Chair: W.G. FAHRENHOLTZ, USA

- 11.10 *CE-1:IL17* **Factors Affecting Oxidation Kinetics of Refractory Diborides**
T.A. PARTHASARATHY*, R.A. RAPP**, M. OPEKA***, M.K. CINIBULK, Air Force Research Laboratory, Materials and Manufacturing Directorate, AFRL/RXLN, Wright-Patterson AFB, OH, USA; *UES, Inc., Dayton, OH, USA; **The Ohio State University, Columbus, OH, USA; ***Naval Surface Warfare Center, Carderock, MD, USA
- 11.40 *CE-1:IL18* **Novel Non-contact Measurement of Creep in ZrB₂ and ZrB₂-SiC Composites**
R.W. HYERS, University of Massachusetts, Amherst, MA, USA; J.R. ROGERS, NASA Marshall Space Flight Center, USA

Session CE-2 - Nitride, Carbide and Boride Ceramics

- 12.10 *CE-2:IL01* **Development of Nano-sized TiN Dispersed Si₃N₄ Ceramics**
K. KOMEYA, J. TATAMI, T. WAKIHARA, T. YAMAKAWA, Dept. of Materials Industry, Yokohama National University, Yokohama, Japan
- 12.40 *CE-2:IL02* **Phase Equilibria in B₄C-based Ceramics**
H.J. SEIFERT, Technical University of Freiburg, Institute of Materials Science, Freiberg, Germany

TUESDAY JUNE 8 MORNING

Sub-session CF-4.2 - Energy Conversion and Storage

Room: ALBA 2

Chair: A. YAMADA, Japan

- 9.30 *CF-4.2:IL01* **Towards the Miniaturization of Solid Oxide Fuel Cells**
E. TRAVERSA, International Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), Tsukuba, Japan
- 10.00 *CF-4.2:IL03* **Single-phase vs. Two-phase Mechanism of Li+ Extraction from LiFePO₄: the Role of Defects**
C. MASQUELIER, S. HAMELET, P. GIBOT, M. CASAS CABANAS, J.M. TARASCON, LRCS, Université de Picardie Jules Verne, Amiens, France; C. GREY, J. CABANA, Stony Brook, NY, USA; S. LEVASSEUR, P. CARLACH, Umicore, Belgium
- 10.30 *CF-4.2:L05* **Flexible SOFC: Challenges**
HYOUP JE CHO, GYEONG MAN CHOI, Dept. of Materials Science and Eng./ Fuel Cell Research Center, Pohang University of Science and Technology (POSTECH), Pohang, Korea; YOUNG MIN PARK, Fuel Cell Project, Research Institute of Industrial Science and Technology, Pohang, Korea
- 10.50 *Break*

Session CF-2 - Ceramic Membranes and Filters

Room: ALBA 2

Chair: F.M.M. SNIJKERS, Belgium

- 11.20 *CF-2:IL06* **Hydrogen-permselective Amorphous Silica-based Membranes**
Y. IWAMOTO, Dept. of Frontier Materials, Nagoya Institute of Technology, Nagoya, Japan
- 11.50 *CF-2:IL07* **Elaboration and Modification of Ceramic Membranes for Filtration Processes**
S.A. CERNEAUX, A.B. LARBOT, D. CORNU, IEM, UMR 5635, site CNRS, Montpellier Cedex, France
- 12.20 *CF-2:L08* **Influence of Oxygen Surface Exchanges on Oxygen Semi-permeation Performances of La_{1-x}Sr_xFe_{1-y}Ga_yO_{3-d} Membranes**
A. VIVET, P.M. GEFFROY, V. COUDERT, T. CHARTIER, CNRS-ENSCI-SPECTS, UMR 6638, Limoges, France; P. DEL GALLO, N. RICHT, Air Liquide, Centre de Recherche Claude-Delorme, Jouy-en-Josas cedex, France

TUESDAY JUNE 8 MORNING

Session CG-1 - Advances in Deposition, Surface Modification and Characterisation

Room: GIOVE

Chair: S. VEPREK, Germany

- 9.00 **CG-1:IL10 Mechanical Properties of Composite Films Consisting of Silicon Nanopillars Embedded in a Nanostructured SiC Matrix**
A.R. BEABER¹, W.W. GERBERICH¹, S.L. GIRSHICK², ¹Dept. of Chemical Eng. and Matls Science, University of Minnesota, Minneapolis, MN, USA; ²Dept. of Mechanical Eng., University of Minnesota, Minneapolis, MN, USA
- 9.30 **CG-1:L12 Suspension Plasma Spraying - Influence of Spraying Parameters on Yttria Stabilized Zirconia Coatings Microstructure**
K. WITTMANN-TENEZE, J. TOULC'HOAT, E. BRUNETON, E. ESTRADE, CEA DAM Le Ripault, Monts, France
- 9.50 **CG-1:L13 Characterization of Thin Films in Silicate Surfaces**
L. FRÖBERG, M. PIISPANEN, L. HUPA, Process Chemistry Centre, Åbo Akademi University, Tuku, Finland
- 10.10 *Break*

Session CG-2 - High Performance Protective Coatings in Oxidizing and Harsh Environments

Room: GIOVE

Chair: S.L. GIRSHICK, USA

- 10.40 **CG-2:IL01 Design of Super- ($H > 40$ GPa) and Ultrahard ($H > 80$ GPa) Nanocomposite Coatings: Theoretical Background, Experiments, and Industrial Applications**
S. VEPREK, Dept. of Chemistry, TU Munich, Garching, Germany
- 11.10 **CG-2:IL02 Environmental Barrier Coatings for Ceramic Matrix Composites**
KANG N. LEE, Rolls Royce Corporation, Indianapolis, IN, USA
- 11.40 **CG-2:L04 Nanolaminated Coatings in the Y₂O₃-Al₂O₃-ZrO₂ System Deposited by MOCVD**
N.K. EILS, P. MECHNICH, DLR, Institute of Materials Research, Cologne, Germany; H. KEUNE, Technical University of Braunschweig, Institute of Surface Technology, Germany
- 12.00 **CG-2:L05 Precursor-derived, Ultra-thin Aluminophosphate Protective Coatings**
B. MANGRICH, S. SAMBASIVAN, Applied Thin Films, Inc., Evanston, IL, USA
- 12.20 **CG-2:L06 Particle-filled Polysilazane-based Coatings on Steel**
M. GÜNTNER, T. KRAUS, W. KRENKEL, G. MOTZ, University of Bayreuth, Ceramic Materials Engineering (CME), Bayreuth, Germany; D. DECKER, Clariant Advanced Materials GmbH, Sulzbach am Taunus, Germany

TUESDAY JUNE 8 MORNING

Session CH-1 - Dielectric of Microwave Materials

Room: SIRIO

Chair: I. LEVIN, USA

- 9.00 *CH-1:IL08* **Thermoplastic Ceramic-polymer Composed of 0-3 Connectivity for High Frequency Applications**
H. JANTUNEN, J. JUUTI, Microelectronics & Materials Physics Lab. and EMPART Research Group of Infotech Oulu, Oulu, Finland; M.T. SEBASTIAN, National Inst. for Interdisciplinary Science & Technology, Trivandrum, India
- 9.30 *CH-1:IL09* **Oxide Nanosheets and Their Integration Technologies for High-k Dielectrics**
M. OSADA, T. SASAKI, WPI Center for Materials Nanoarchitectonics (MANA), National Inst. for Materials Science, Tsukuba, Japan, and CREST, JST, Japan
- 10.00 *CH-1:IL11* **Thin Films of Advanced Dielectrics for High Frequency Applications: Deposition, (Nano) Characterization and Device Fabrications**
R. LO NIGRO, Istituto per la Microelettronica e Microsistemi (IMM)-CNR, Catania, Italy
- 10.30 *Break*

Session CH-2 - Ferroelectrics, Piezoelectrics

Room: SIRIO

Chair: P. MURALT, Switzerland

- 11.00 *CH-2:IL01* **Advances in Pb-free Piezoelectric Materials**
A. SAFARI, The Glen Howatt Electroceramic Lab., Dept. of Matls Science and Eng., Rutgers University, Piscataway, NJ, USA
- 11.30 *CH-2:IL02* **Effect of DC Poling Field on Domain Behaviour in Lead Free Piezoelectric Ceramics**
T. OGAWA, Dept. of Electrical and Electronic Eng., Shizuoka Institute of Science and Technology, Fukuroi, Shizuoka, Japan; M. FURUKAWA, T. TSUKADA, Materials & Process Development Centre, TDK Corporation, Narita, Chiba, Japan
- 12.00 *CH-2:IL04* **Fractal Geometry and Properties of Doped BaTiO₃ Ceramics**
V. MITIC^{1,2}, V.B. PAVLOVIC³, L.J. KOCIC¹, V. PAUNOVIC¹, L.J. ZIVKOVIC¹, ¹University of Nis, Faculty of Electronic Engineering, Nis, Serbia; ²Institute of Technical Sciences of SASA, Belgrade, Serbia; ³University of Belgrade, Faculty of Agriculture, Belgrade, Serbia
- 12.30 *CH-2:IL03* **Piezoelectric Materials in Thin Form for MEMS and NEMS Applications**
D. REMIENS, C. SOYER, IEMN-CNRS, Villeneuve d'Ascq, France

Session CI-2 - Multiferroics Compounds

Room: URANO

Chair: C. PANAGOPOULOS, Crete

- 9.00 *CI-2:IL03* **Electronic Orbital Currents and Polarization in Mott Insulators**
D. KHOMSKII, II. Physikalisches Institut, University of Köln, Köln, Germany
- 9.30 *CI-2:IL04* **Strain Engineered Magnetoelectric Coupling and Ferro-electricity in Orthorhombic AMnO₃ Epitaxial Thin Films**
J. FONTCUBERTA, X. MARTI, I. FINA, L. FABREGA, F. SANCHEZ, Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Bellaterra, Spain; V. SKUMRYEV, Universitat Autònoma de Barcelona (UAB), Dept. Física, Bellaterra, Spain and Institut Català de Recerca i Estudis Avançats, Barcelona, Spain; C. FERRATER, M. VARELA, Universitat de Barcelona, Dept. Física Aplicada i Òptica, Barcelona, Spain
- 10.00 *CI-2:IL06* **Charge-based Magnetoelectric Coupling in Complex Oxide Heterostructures**
C. AHN, Yale University, New Haven, CT, USA
- 10.30 *CI-2:IL01* **Room-temperature Multiferroic Coupling of BiFeO₃**
J.-G. PARK, Dept. of Physics & Astronomy, Seoul National University, Seoul, Korea

TUESDAY JUNE 8 MORNING

Session CJ-1 - Science of Silicate Ceramics

Room: **SMERALDO 1**

Chair: D. HOTZA, Brazil

- 8.40 *CJ-1:IL04* **Glass Ceramic Systems Suitable for Conventional Ceramic Glazes**
B. KARASU, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey
- 9.10 *CJ-1:IL05* **New Development in the Non Contact Measurement of Thermo-mechanical Properties of Materials**
M. PAGANELLI, Expert System Solutions Srl, Modena, Italy; D. PAGANELLI, Ingegneria dei Materiali, Università di Modena, Italy
- 9.40 *CJ-1:L06* **Use of Iron-rich Slag as Raw Material for Production of Glassy and Glass-ceramic Pyroxene Materials**
E.I. CEDILLO GONZÁLEZ¹, J.J. RUIZ VALDÉS^{1,2}, A. ÁLVAREZ MÉNDEZ¹, ¹Facultad de Ciencias Químicas, Universidad Autónoma de Nuevo León, Monterrey, N.L., Mexico; ²Centro de Innovación, Investigación y Desarrollo en Ingeniería y Tecnología CIIDIT, Universidad Autónoma de Nuevo León, Apodaca, N.L., Mexico
- 10.00 *Break*

Session CK-1 - Preparation

Room: **SMERALDO 1**

Chair: V. BILEK, Czech Republic

- 10.30 *CK-1:IL03* **The Role of Molecular Research in the Commercialization of Geopolymer Concrete in Australia**
J.S.J. VAN DEVENTER, P. DUXSON, Zeobond Pty Ltd, Somerton, Victoria, Australia; J.L. PROVIS, C.E. WHITE, Dept. of Chemical & Biomolecular Eng., The University of Melbourne, Victoria, Australia
- 11.00 *CK-1:L05* **The Incorporation of Gallium Into Inorganic Polymer Structures: Synthesis and Thermal Behaviour**
A.T. DURANT, K.J.D. MACKENZIE, Victoria University of Wellington, Wellington, New Zealand
- 11.20 *CK-1:L06* **Kinetic Analysis of Processes Underlying Geopolymerization and Gain of Strength**
C. CHEN, W. GONG, W. LUTZE, I.L. PEGG, The Catholic University of America, Washington, DC, USA
- 11.40 *CK-1:L07* **Understanding Study of Silicate-based Gel formed during the Setting of Ceramic Materials**
M.T. TOGNONVI, S. ROSSIGNOL, J.P. BONNET, GEMH-ENSCI, Limoges, France; A. LECOMTE, SPCTS-ENSCI, Limoges, France; D. MASSIOT, CEMHTI-CNRS UPR 3079, Orléans, France
- 12.00 *CK-3:L13* **Recycling of Industrial Waste Water by its Immobilization in Geopolymer Cement**
D. TAVOR, A. WOLFSON, T. MEYOHAS, S. RONEN, Center of Green Processes, Chemical Engineering Dept., Sami Shamoon College of Eng., Beer-Sheva, Israel
(rescheduled time as for Author request)

TUESDAY JUNE 8 MORNING

Session CL-1 - Raw Materials

Room: **SMERALDO 3**

Chair: A.H. DE AZA, Spain

- 9.00 *CL-1:L04* **Exploitation of Ceramic Wastes by Recycling in Alumina-Mullite Refractories**
F. MAZZANTI, A. BRENTARI, A. COGLITORE, C. MINGAZZINI, M. LABANTI, M. SCAFÈ, S. SANGIORGI, M. VILLA, ENEA, Engineering of Components and Processes Section - Faenza Research Centre, Faenza, Italy; S. MARTELLI, Centro Sviluppo Materiali S.p.A., Rome, Italy
- 9.20 *CL-1:L05* **Phase Equilibria and Crystal Structures in Ternary Systems Ce, Eu, Yb-VIIIb Group Element-Boron**
O. SOLOGUB, P. ROGL, Institute of Physical Chemistry, University of Vienna, Vienna, Austria; L. SALAMAKHA, E. BAUER, Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria; G. GIESTER, Institute of Mineralogy and Crystallography, University of Vienna, Vienna, Austria
- 9.40 *CL-1:IL06* **The Latest Trend in Refractories for Iron and Steelmaking in Nippon Steel Corporation**
T. MATSUI, Refractory Ceramics R&D Division, Nippon Steel Corporation, Futtsu city, Chiba pref., Japan
- 10.10 *CL-1:L08* **The Effect of Additives on Performance of Chromite Base Ladle Filler Sands for Continuous Casting**
F. FARSHIDFAR, **M.G. KAKROUDI**, SH. KHAMENEH ASL, Dept. of Material Science and Engineering, Faculty of Mechanical Engineering, University of Tabriz, Tabriz, Iran
- 10.30 *Break*

Session CL-3 - Manufacturing, Selection, Design and Use

Room: **SMERALDO 3**

Chair: V.C. PANDOLFELLI, Brazil

- 11.00 *CL-3:IL01* **Carbon Containing Castables and More**
C.G. ANEZIRIS, S. DUDCZIG, Institute of Ceramic, Glass and Construction Materials, TU Bergakademie Freiberg, Germany
- 11.30 *CL-3:IL02* **Microtexture Control of Alumina Using Anisotropic Alumina Particles**
S. HASHIMOTO, S. HONDA, Y. IWAMOTO, Nagoya Institute of Technology, Nagoya-shi, Japan; H. HIRANO, Towa Refractory Engineering, Kani-shi, Japan
- 12.00 *CL-3:L04* **Adding Borates to Al₂O₃-MgO Refractory Castables**
M.A.L. BRAULIO, V.C. PANDOLFELLI, Federal University of Sao Carlos, Materials Engineering Dept., Materials Microstructure Engineering Group - GEMM, Sao Carlos, SP, Brazil
- 12.20 *CL-3:L05* **Sintering Studies on Magnesia-Rich Chromium-Free Spinel-Bonded Basic Refractories**
R. LODHA, C. OPREA, T. TROCZYNSKI, G. OPREA, Dept. of Materials Engineering, University of British Columbia, Vancouver, BC, Canada

TUESDAY JUNE 8 MORNING

Session CM-2 - Nanomaterials Characterization and Techniques

Room: **SMERALDO 2**

Chair: A. MERMET, France

- 9.00 *CM-2:IL01* **Raman Spectroscopy of Functionalized Carbon Nanostructures**
J. MAULTZSCH, H. TELG, Institut f. Festkörperphysik, Technische Universität Berlin, Berlin, Germany
- 9.30 *CM-2:IL02* **Non-contact Atomic Force Microscopy for Nano-characterization**
M. ABE, Y. SUGIMOTO, S. MORITA, Graduate School of Engineering, Osaka University, Suita, Japan
- 10.00 *CM-2:IL03* **Size and Surface Effects on Emission Properties of Lanthanide Doped Upconversion NaYF₄ Nanoparticles**
G.M. CHOW, Dept. of Materials Science and Engineering, National University of Singapore, Kent Ridge, Republic of Singapore
- 10.30 *CM-2:IL04* **Low-frequency Raman Scattering in Nanometric Structures**
A. MERMET, E. DUVAL, LPCML, Université Lyon, Villeurbanne, France
- 11.00 *Break*

Session CM-1 - Nanomaterials and Systems at Nanoscale

Room: **SMERALDO 2**

Chair: G. RAMANATH, USA

- 11.30 *CM-1:IL10* **Layer-by-Layer Assembly of Transition Metal Oxide Nanosheets Into Functional Ultrathin Films**
T. SASAKI, Y. EBINA, M. OSADA, International Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan
- 12.00 *CM-1:IL11* **Nanocrystal Based Architectures for Optoelectronics and Photonics**
N. GAPONIK, Physical Chemistry, TU Dresden, Germany
- 12.30 *CM-1:L12* **Nano/Micro-protrusions on Cu-based Alloys Grown by Ar Ion Irradiation**
M. NAMATAME, S. ODA, Dept. of Metallurgy, Tohoku University, Sendai, Japan; S.-I. TANAKA, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan

TUESDAY JUNE 8 MORNING

Session CN-1 - Production and Properties of Reinforcements, Preforms, and Matrix Materials

Room: **AMBRA**

Chair: J. SINGH, USA (*Programme Chair*)

9.30 *Welcome*

- 9.40 *CN-1:IL01* **Advanced Ceramic Fibers**
D. SPORN, Fraunhofer-Institute für Silicatforschung, Wuerzburg, Germany
- 10.15 *CN-1:IL02* **Composites with Ceramic Matrix Through Sol-gel Route**
S. MANOCHA, M. VYAS, L.M. MANOCHA, Dept. of Materials Science, Sardar Patel University, Vallabh Vidyanagar, India
- 10.50 *CN-1:L04* **Si-C-O Fibers in Gas Reactive Atmospheres**
M. BRISEBOURG, G. PUYOO, H. PLAISANTIN, G. CHOLLON, Lab. des Composites Thermostructuraux, University of Bordeaux, Pessac, France

11.15 *Break*

Chair: D. SPORN, Germany

- 11.45 *CN-1:IL06* **Ceramic Fibers - Manufacturing, Properties and Applications**
B. CLAUB, ITCF Denkendorf, Denkendorf, Germany
- 12.20 *CN-1:L07* **Continuous Non-oxide Nanofibers Produced with a Polymer-derived Ceramic Approach**
V. SALLES, S. BERNARD, A. BRIOUDE, D. CORNU, P. MIELE, Laboratoire des Multimatériaux et Interfaces UMR UCBL/CNRS 5615 - Université Lyon 1 Villeurbanne, France

TUESDAY JUNE 8 AFTERNOON

Session CA-1 - Powder Synthesis and Characterisation

Room: **VENERE**

Chair: G.R. PATZKE, Switzerland

- 17.00 *CA-1:IL06* **Microstructural Tailoring of YAG and YAG-containing Nanoceramics Through Advanced Synthesis Routes**
P. PALMERO, L. MONTANARO, Dept. of Materials Science and Chemical Engineering, Politecnico di Torino, Torino, Italy
- 17.30 *CA-1:L15* **Synthesis, Up-conversion Luminescence and Sensing Properties of Trivalent Rare Earth Ion Doped CeO₂ Powders**
L. BACA, H. STEINER, N. STELZER, AIT Austrian Institute of Technology GmbH, Advanced Materials and Aerospace Technologies, Seibersdorf, Austria
- 17.50 *CA-1:L16* **Ultra-fine WC-Co Composites Prepared by Nitride Conversion Method and Their Properties**
YAN-MEI KAN, SHI-KUAN SUN, GUO-JUN ZHANG, State Key Laboratory of High Performance Ceramics and Superfine Microstructures, Shanghai Institute of Ceramics, Shanghai, China
- 18.10 *CA-1:L17* **Synthesis of Ceramic Materials from Waste Residues**
S. PORTOFINO, S. GALVAGNO, ENEA, C.R. Portici, Portici (NA), Italy
- 18.30 *CA-1:L18* **Solvothermal Synthesis of ITO Nanoparticles Precisely Controlled in Size and Shape**
A. MURAMATSU, T. SASAKI, Y. ENDO, Y. DOI, K. KANIE, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan
- 18.50 *CA-1:L20* **Challenges in the Synthesis of Metal Fluorides via Microemulsion Route**
A. SABERI, M. WILLERT-PORADA, Faculty of Engineering Science, University of Bayreuth, Bayreuth, Germany

Session CA-2 - Colloidal Processing

Room: **AUDITORIUM**

Chair: P. BOWEN, Switzerland

- 15.00 *CA-2:IL06* **When Specific Interparticle Forces Lead Colloidal Particles to Self-assemble in Dilute Suspensions: Simulation and Experiment**
A. VIDECOQ, M. PIECHOWIAK, C. PAGNOUX AND F. ROSSIGNOL, SPCTS, UMR 6638, ENSCI, CNRS, Limoges, France; M. CERBELAUD, R. FERRANDO, Dipartimento di Fisica dell'Università di Genova, Genova, Italy
- 15.30 *CA-2:IL07* **Modified Surfaces of Ceramic Particles Finely Tuned for Ceramic Forming Processes**
K. SATO, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan
- 16.00 *CA-2:L08* **Influence of Energy Input on Suspension Properties**
A. MEYER, A. POTTHOFF, K. LENZNER, Fraunhofer IKTS, Dresden, Germany
- 16.20 *CA-2:L09* **Effects of Dispersion Surfactants on the Properties of Alumina - Carbon Nanotube (CNT) Nanocomposites**
F. INAM¹, A. HEATON², P. BROWN², T. PEIJS^{1,3}, M.J. REECE^{1,3},
¹Queen Mary University of London, Nanoforce Technology Ltd, London, UK; ²Dstl, Porton Down, Salisbury, Wiltshire, UK; ³Queen Mary University of London, School of Engineering and Materials Science, London, UK
- 16.40 *Break*

Session CA-4 - Sintering and Related Phenomena

Room: AUDITORIUM

Chair: D. BOUVARD, France

- 17.00 **CA-4:L05 Effect of Anisotropic Local Structure on Sintering Stress Tensor and Viscosities for Macroscopic Shrinkage in Sintering**
F. WAKAI, Y. SHINODA, T. AKATSU, Secure Materials Center, Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan
- 17.20 **CA-4:L06 Particle-based Simulations of Thin Film Sintering**
T. RASP, A. WONISCH, T. KRAFT, H. RIEDEL, Fraunhofer Institute for Mechanics of Materials, Freiburg, Germany
- 17.40 **CA-4:L07 Modelling Multi-cracking in Thin Films during Constrained Sintering**
FAN LI, JINGZHE PAN, Dept. of Engineering, University of Leicester, Leicester, UK
- 18.00 **CA-4:L08 Contribution of Discrete Element Simulation to the Analysis of Ceramic Aggregated Powder Processing**
P. PIZETTE¹, C.L. MARTIN¹, G. DELETTE², F. SANS³, D. BOUVARD¹,
¹Lab. SIMAP-GPM2, Grenoble Institute of Technology / Université Joseph Fourier / CNRS, Saint Martin d'Herès, France; ²CEA-Grenoble, DRT/LITEN/DTH/LEV, Grenoble Cedex, France; ³AREVA/MELOX DT/DIP, Bagnols sur Cèze, France
- 18.20 **CA-4:L10 Reactive Spark Plasma Sintering of Si₃N₄/SiC Composites**
Z. TASLICUKUR¹, F. CINAR SAHIN², N. KUSKONMAZ¹, ¹Yildiz Technical University, Metallurgical and Matls Engrg Dept., Istanbul, Turkey; ²Istanbul Technical University, Metallurgical and Matls Engrg Dept., Istanbul, Turkey
- 18.40 **CA-4:L11 Monitoring Constrained Sintering of Yttria Stabilised Zirconia Coatings Using Fluorescence Spectroscopy**
I.P. SHAPIRO, PING XIAO, University of Manchester, Manchester, UK

TUESDAY JUNE 8 AFTERNOON

Session CB-1 - Soft Solution Processing

Room: LE PLEIADI

Chair: K. BYRAPPA, India

- 15.00 **CB-1:L08 Morphology Control of Rutile, Brookite and Anatase Type Titanium Dioxide by Hydrothermal Treatment of Water Soluble Titanium Complexes**
M. KOBAYASHI, M. KAKIHANA, IMRAM, Tohoku University, Sendai, Japan; V. PETRYKIN, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech; K. TOMITA, Tokai University, Hiratsuka, Japan
- 15.20 **CB-1:L09 Synthesis and Characterization of High Surface Area Zinc Oxide-carbon Composite**
T. YONG-JIN HAN, M.A. WORSLEY, T.F. BAUMANN, J.H. SATCHER Jr., T.Y. OLSON, Physical and Life Sciences, Lawrence Livermore Nat. Lab., Livermore, CA, USA
- 15.40 **CB-1:L10 Synthesis of Alumina and Aluminium Nitride Layers on a Graphite Substrate via a Sol-gel Route**
F. FONTAINE, R. PAILLER, A. GUETTE, Laboratoire des Composites Thermo-structuraux, University of Bordeaux 1, Pessac, France
- 16.00 **CB-1:L11 Synthesis of Monodispersed Plate-like CeO₂ Particles by Mild Solution Process**
S. YIN, Y. MINAMIDATE, T. SATO, IMRAM, Tohoku University, Sendai, Japan
- 16.20 **CB-1:L12 Co-doping Effect of Metal Ion on the visible Light Responsive Photocatalytic Properties of Nitrogen-doped Titanium Dioxide**
PEILIN ZHANG, SHU YIN, T. SATO, IMRAM, Tohoku University, Sendai, Japan
- 16.40 **CB-1:L13 Transparent Silica Ambigels through Ternary Azeotropic Mixture**
YOUNG-JEI OH, JEON-KOOK LEE, WON-KOOK CHOI, Materials Science and Technology Division, Korea Institute of Science and Technology (KIST), Seoul, South Korea
- 17.00 *Break*

TUESDAY JUNE 8 AFTERNOON

Chair: J. BINNER, UK

- 17.30 **CB-1:L14 Use of Additives in the CSD Approach to Oxide Ceramic Layers. The YBCO Example**
S. RICART, F. MARTÍNEZ- JULIÁN, X. PALMER, P. ABELLAN, F. SANDIUMENGE, A. POMAR, A. PALAU, X. OBRADORS, T. PUIG, Instituto Ciencias de Materiales de Barcelona (CSIC), Bellaterra, Spain
- 17.50 **CB-1:L15 High-performance Si-based Photoceramics via Aqueous Solution Processes Using New Water-soluble Si-compounds**
M. KAKIHANA, Y. SUZUKI, S. TEZUKA, IMRAM, Tohoku University, Sendai, Japan; V. PETRYKIN, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech
- 18.10 **CB-1:L16 Tailored Silica Based Aerogels for Insulation in Space Environments**
L. DURAES, M. OCHOA, A. PORTUGAL, Dept. of Chemical Engineering, University of Coimbra, Coimbra, Portugal; A. MANAIA, J.P. DIAS, LED&MAT, IPN-Instituto Pedro Nunes, Coimbra, Portugal; J. HERNANDEZ, R. PATRÍCIO, AST-Active Space Technologies, IPN, Coimbra, Portugal
- 18.30 **CB-1:L17 Microwave Assisted Solvothermal Synthesis and Visible Light Photocatalytic Properties of Nb and N Co-doped SrTiO₃ Nanoparticles**
U. SULAEMAN, S. YIN, T. SATO, IMRAM, Tohoku University, Sendai, Japan
- 18.50 **CB-1:L18 Soft Solution Processing of Ceramic Powders and Films: Preparation, Properties and Application**
YANFENG GAO, HONGJIE LUO, Shanghai Institute of Ceramics, CAS, Shanghai, China

Session CB-7 Hybrid Materials

Room: ZENITH

Chair: C. SANCHEZ, France

- 15.00 **CB-7:L07 Exploring Inorganic-Organic Interfaces in Hybrid Materials with Advanced NMR Tools**
N. FOLLIET, N. BACCILE, T. AZAIS, C. GERVAIS, G. LAURENT, C. BONHOMME, **F. BABONNEAU**, Lab. de Chimie de la Matière Condensée de Paris, Université Pierre et Marie Curie-UPMC and CNRS, Collège de France, Paris, France; P.M. AGUIAR, D. SAKELLARIOU, Lab. de Structure et Dynamique par Résonance Magnétique, Service Interdisciplinaire sur les Systèmes Moléculaires et les Matériaux (Lab. Claude Frejacques, CNRS URA 331) DSM/IRAMIS/SIS2M, CEA Saclay, Gif-sur-Yvette, France
- 15.20 **CB-7:L08 Thermal and Dimensional Stability of Filled Hybrid Foam**
MING Y. CHEN¹, CHENGGANG CHEN^{1,2}, ¹Air Force Research Laboratory, Materials & Manufacturing Directorate, Wright-Patterson AFB, OH, USA; ²University of Dayton Research Institute, Dayton, OH, USA
- 15.40 **CB-7:L09 In-situ TEM Observation of the Crystallization Process for Li NbO₃ and NaNbO₃**
H. NAKANO, Toyohashi University of Technology, Toyohashi, Japan; Y. SUYAMA, Shimane University, Japan
- 16.00 **CB-7:L10 Ceramic/Polymeric Hybrids with Reduced Coefficients of Thermal Expansion**
CHENGGANG CHEN^{1,2}, K.H. HOOS^{1,3}, **MING Y. CHEN**¹, ¹Air Force Research Laboratory, Materials & Manufacturing Directorate, Wright-Patterson AFB, OH, USA; ²University of Dayton Research Institute, Dayton, OH, USA; ³Southwestern Ohio Council for Higher Education, USA
- 16.20 **CB-7:L11 Dimension- and Direction-controlled Gold Nanorods Deposited in Ordered Mesoporous Silica**
G. KAWAMURA, I. HAYASHI, R.A. FITRAH, J. HAMAGAMI, M. SAKAI, A. MATSUDA, Toyohashi University of Technology, Toyohashi, Japan; H. MUTO, Kurume National Col. Technol., Japan
- 16.40 *Break*

TUESDAY JUNE 8 AFTERNOON

Session CB-8 - Porous Ceramics

Room: ZENITH

Chair: F. BABONNEAU, France

- 17.10 *CB-8:L04* **High Surface Area Cr₂O₃ Tubes Synthesized by Replica Technique**
P. GIBOT, Institut Franco-Allemand de Recherches de Saint-Louis (ILS), NS3E, ISL/CNRS UMR 3208, Saint-Louis Cedex, France
- 17.30 *CB-8:L07* **Synthesis and Characterization of Spherical Mesoporous Hydroxyapatite**
F.-Y. YEOH, K.-S. LEW, School of Materials & Mineral Resources Engineering, University Sains Malaysia, Penang, Malaysia
- 17.50 *CB-8:L08* **Fabrication of Porous Ceramics by Spark Plasma Sintering**
P. MIRANZO, E. GARCIA, M.I. OSENDI, Institute of Ceramics and Glass (CSIC), Madrid, Spain
- 18.100 *CB-8:L09* **Structural, Mechanical and Filtering Properties of Porous Titania/Alumina Ceramic**
A. BUTLERS, R. SVINKA, V. SVINKA, Riga Technical University, Institute of Silicate Materials, Riga, Latvia

TUESDAY JUNE 8 AFTERNOON

Session CB-11.2 - Fundamentals of SHS

Room: ORSA MINORE

Chair: J. LIS, Poland

- 15.00 *CB-11.2:IL05* **Gasless Combustion: Physical Modelling of the Process**
A.S. ROGACHEV, Institute of Structural Microkinetics and Materials Science, RAS, Chernogolovka, Moscow region, Russia
- 15.30 *CB-11.2:IL06* **Modeling the Combustion Synthesis of Intermetallic Compounds**
F. BARAS, F. BERNARD, Lab. Interdisciplinaire Carnot de Bourgogne, UMR 5209 CNRS-Université de Bourgogne, Dijon Cedex, France
- 16.00 *CB-11.2:L08* **Macrokinetics of Formation of Macrostructure of Product in SHS**
V. PROKOFIEV, V. SMOLYAKOV, Dept. of Structural Macrokinetics of Tomsk Scientific Center of Siberian Branch of RAS, Tomsk State Univ., Tomsk, Russia

16.20 *Break*

Session CB-12.2 - Layered and Graded Thin and Thick Coatings

Room: ORSA MINORE

Chair: M. FRIESS, Germany

- 16.50 *CB-12.2:IL01* **Multifunctional Nanostructured Films for Biomedical Applications**
D.V. SHTANSKY, I.A. BASHKOVA, A.N. SHEVEIKO, E.A. LEVASHOV, National University of Science and Technology "MISIS", Moscow, Russia; N.A. GLOUSHANKOVA, Cancer Research Center, Moscow; A.S. GRIGORYAN, Central Research Dental Institute, Moscow, Russia
- 17.20 *CB-12.2:IL02* **Fabrication of Porous Intermetallic Thick Films by Metallic Powder-liquid Reaction**
T. OHMI, M. IGUCHI, Hokkaido University, Sapporo, Hokkaido, Japan
- 17.50 *CB-12.2:IL03* **High-strength Reaction-sintered Silicon Carbide for Large-scale Mirrors**
S. SUYAMA, Y. ITOH, Power and Industrial Systems R&D Center, Toshiba Corp., Yokohama, Japan

TUESDAY JUNE 8 AFTERNOON

Session CE-2 - Nitride, Carbide and Boride Ceramics

Room: **VENERE**

Chair: G. FANTOZZI, France

- 15.00 **CE-2:IL03 Defect Detection in Ceramic Armor Using Phased Array Ultrasound**
W.A. ELLINGSON, Argonne National Laboratory, Argonne, IL, USA; J.S. STECKENRIDER, Illinois College, Jacksonville, IL, USA ; T.J. MEITZLER, US Army, Warren, MI, USA
- 15.30 **CE-2:IL04 Silicon Nitride Ceramics - Microstructural Tailoring and Mechanical Properties**
M.J. HOFFMANN, S. FÜNFSCHILLING, TH. FETT, Karlsruhe Institute for Technology, Inst. for Ceramics in Mechanical Engineering, Karlsruhe, Germany
- 16.00 **CE-2:L05 Microstructure and Mechanical Properties of Rare-earth Doped Si₃N₄ and Si₃N₄/SiC Ceramics**
P. TATARKO¹, S. LOJANOVA², Z. CHLUP³, **J. DUSZA**¹, P. SAJGALIK²,
¹Institute of Materials Research, SAS, Kosice, Slovak Republic;
²Institute of Inorganic Chemistry, SAS, Bratislava, Slovak Republic;
³Institute of Physics of Materials, Academy of Sciences of the Czech Republic, Brno, Czech Republic
- 16.20 **CE-2:L06 Tribo-mechanical Properties of Carbon Nanotubes/Silicon Nitride Nanocomposites**
J. GONZALEZ-JULIAN*, J. SCHNEIDER**, P. MIRANZO*, M.I. OSENDI*, **M. BELMONTE***, *Institute of Ceramics and Glass (CSIC), Campus de Cantoblanco, Madrid, Spain; **Akademischer Oberrat, Universität Karlsruhe (TH), Inst. für Werkstoffkunde II c/o Forschungszentrum Karlsruhe, Eggenstein-Leopoldshafen, Germany
- 16.40 **CE-2:L07 Hot Pressed SiC-AlN Materials System - Solid Solution Effects**
B. MIKIJEJLJ, Z. NAWAZ, Ceradyne Inc, Costa Mesa CA, USA; J. ADAMS, J. LASALVIA, ARL, Aberdeen proving grounds, Aberdeen, MD, USA

TUESDAY JUNE 8 AFTERNOON

Session CF-2 - Ceramic Membranes and Filters

Room: ALBA 2

Chair: Y. IWAMOTO, Japan

- 15.00 *CF-2:IL01* **Ceramic Hollow Fiber Gas Separation Membranes for Sustainable Energy Production**
F.M.M. SNIJKERS, C. BUYSSE, A. KAVALEUSKI, J.J. LUYTEN, A. BUEKENHOUDT, Flemish Institute for Technological Research (VITO), Mol, Belgium
- 15.30 *CF-2:IL02* **The Environment Improved by the Use of Ceramic Membranes and Filters**
J. LUYTEN, S. MULLENS, F. SNIJKERS, A. BUEKENHOUDT, Materials Technology, VITO, Mol, Belgium
- 16.00 *CF-2:IL03* **Dense Ceramic Membranes for Oxygen Separation**
H.J.M. BOUWMEESTER, Inorganic Membranes, University of Twente, Enschede, The Netherlands
- 16.30 *CF-2:L04* **Ceramic Foams with Hierarchical Porosity from Pre-ceramic Polymers**
C. VAKIFAHMETOGLU, **P. COLOMBO**, Dipartimento di Ingegneria Meccanica- Settore Materiali, Università di Padova, Padova, Italy; J. WOLTERS DORF, E. PIPPEL, Max-Planck-Institut für Mikrostrukturphysik, Halle, Germany
- 16.50 *CF-2:L05* **Development of Acicular Mullite Filters Designed for Filtration of Diesel Particles and Reduction of NO_x**
A.J. PYZIK, R. ZIEBARTH, CHAN HAN, The Dow Chemical Company, Midland, MI, USA
- 17.10 *Break*

Session CF-1 - Ceramics in Chemical and Biochemical Sensors

Room: ALBA 2

Chair: P.K. DUTTA, USA

- 17.40 *CF-1:L05* **Novel Architectures for Gas Sensing through Semiconductor Thin Films Containing Au Nanoparticles with Highly Controlled Morphology**
A. MARTUCCI, E. DELLA GASPERA, Dip. Ing. Meccanica Settore Materiali, Università di Padova, Padova, Italy; M. POST, NRC-Ottawa, Canada
- 18.00 *CF-1:L06* **Effect of the Electrode Morphology on the Sensing Characteristic of the YSZ Based Potentiometric Oxygen Sensor**
M. MORI, Y. KOJIMA, Y. SADAOKA, Dept. of Materials Science and Biotechnology, Ehime University, Matsuyama, Japan
- 18.20 *CF-1:L07* **CVD of Tin Oxide Nanowires: Growth, Structure and Property**
S. MATHUR, **H. SHEN**, Institute of Inorganic and Materials Chemistry, University of Cologne, Cologne, Germany

TUESDAY JUNE 8 AFTERNOON

Session CG-1 - Advances in Deposition, Surface Modification and Characterisation

Room: URANO

Chair: A. YEROKHIN, UK

- 15.00 *CG-1:IL14* **Development of Methodology of Fracture Toughness for Thin Films and Coatings**
SAM ZHANG, XIAOMIN ZHANG, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore
- 15.30 *CG-1:IL15* **Possibilities in Characterization of Ceramic Thin Coatings Pore Microstructures by Synchrotron X-ray Imaging and Scattering Techniques**
J. ILAVSKY, Advanced Photon Source, Argonne National Lab., IL, USA
- 16.00 *CG-1:L16* **Characteristics of BaTiO₃/LaNiO₃ and Ba_{0.48}Sr_{0.52}TiO₃/LaNiO₃ Artificial Superlattices Films Prepared by RF Magnetron Sputtering**
HSIN-YI LEE, National Synchrotron Radiation Research Center, Hsinchu, Taiwan
- 16.20 *CG-1:L17* **The Role of Multi-layering in Controlling Contact Damage in Nitride Based Hard Coatings: TiAlN-TiN and ZrN-ZrN**
N. VERMA, S. MATH, V. JAYARAM, S.K. BISWAS, Indian Institute of Science, Bangalore, India
- 16.40 *CG-1:L18* **Ti-Si-C Films Formed by Dual Beam Ion Assisted Deposition**
A. TWARDOWSKA¹, **B. RAJCHEL**², **L. JAWORSKA**^{1,3}, ¹Institute of Technology, Pedagogical University, Krakow, Poland; ²Institute of Nuclear Physics, Polish Academy of Sciences, Krakow, Poland; ³Institute of Advanced Manufacturing Technology, Krakow, Poland
- 17.00 *Break*

**Session CG-2 - High Performance Protective Coatings
in Oxidizing and Harsh Environments**

Room: **URANO**

Chair: J. MATEJICEK, Czech Republic

- 17.30 *CG-2:L07* **Durability of Materials at High Temperature**
J.L. GROSSEAU-POUSSARD, Lab. d'Etudes des Matériaux en Milieux Agressifs (LEMMA), EA-3167, FREDD-CNRS, Université de La Rochelle, Pôle Sciences et Technologie, La Rochelle cedex, France
- 18.00 *CG-2:L08* **Mechanical and Surface Properties of Chemical Vapor Deposited Protective Aluminum Oxide Films on TA6V Alloy**
D. SAMÉLOR, M. AUFRAY, N. PÉBÈRE, **C. VAHLAS**, Centre Interuniversitaire de Recherche et d'Ingénierie des Matériaux, Toulouse, France; Y. BALCAEN, J. ALEXIS, L. LACROIX, J-D. BEGUIN, Université de Toulouse, INP/ENIT, LGP, Tarbes, France
- 18.20 *CG-2:L09* **Oxidation Behavior of Thermal Barrier Coatings on Copper Substrates**
J. SCHLOESSER, J. RÖSLER, M. BÄKER, Technische Universität Braunschweig, Institut für Werkstoffe, Braunschweig, Germany
- 18.40 *CG-2:L10* **Water Corrosion of Mullite-based EBC Multilayer Coatings**
E. GARCIA, J. MESQUITA-GUIMARAES, P. MIRANZO, M.I. OSENDI, Instituto de Ceramica y Vidrio (CSIC), Madrid, Spain; C.V. COJOCARU, Y. WANG, C. MOREAU, R.S. LIMA, National Research Council of Canada, Boucherville, QC, Canada

Session CH-2 - Ferroelectrics, Piezoelectrics

Room: SIRIO

Chair: L. PARDO, Spain

- 15.00 *CH-2:IL10* **Large Remanent Polarization in BiFeO₃ Based Single Crystals**
Y. NOGUCHI, H. MATSUO, Y. KITANAKA, M. MIYAYAMA, Research Center for Advanced Sci. and Tech., The University of Tokyo, Japan
- 15.30 *CH-2:IL11* **Piezo-ferroelectric Thin Films: From Nucleation to Functionality**
P. MURALT, Ceramics Laboratory, Swiss Federal Institute of Technology EPFL, Lausanne, Switzerland
- 16.00 *CH-2:IL12* **Correlation Between Powder Properties and Processing Conditions of Mechanically Activated Nanocrystalline BaTiO₃**
V.B. PAVLOVIC, Fac. of Mech. Eng., Univ. of Belgrade, Serbia; V.P. PAVLOVIC, Joint Lab. for Adv. Matls of the Serbian Academy of Sciences and Arts, Belgrade, Serbia; J. KRSTIC, Inst. of Chemistry, Tech. and Metallurgy, Belgrade, Serbia; M.J. SCEPANOVIC, Center for Solid State Physics and New Materials, Inst. of Physics, Belgrade, Serbia; V. MITIC, Fac. of Electronic Eng., University of Nis, Serbia; J. BLANUŠA, Vinca Institute of Nuclear Sciences, Belgrade, Serbia; D. POPOVIC, Faculty of Physics, University of Belgrade, Serbia
- 16.30 *CH-2:L13* **Preparation of Textured Niobium-doped Bismuth Titanate Ceramics by Tape Casting**
E.C. AGUIAR, E. LONGO, J.A. VARELA, Chemistry Institute, UNESP, Araraquara, SP, Brazil
- 16.50 *Break*

Chair: A. SAFARI, USA

- 17.20 *CH-2:IL05* **Theory and Analysis of Transient Response to High Power Signals in Lead-based or Lead-free Piezoelectric Ceramics**
T. TSURUMI, S. TAKAHASHI, M. HAGIWARA, M. YANAGIHASHI, T. HOSHINA, H. TAKEDA, Nano-Phononics Lab., Graduate School of Science and Eng., Tokyo Institute of Technology, Tokyo, Japan
- 17.50 *CH-2:IL06* **Integrated ZnO Surface Acoustic Wave Microfluidics and Biosensors**
J.K. LUO, Centre for Material Res. & Innovation, University of Bolton, UK; Y.Q. FU, School of Eng. and Physical Sci., Heriot Watt University, UK; W.I. MILNE, Dept. of Eng., University of Cambridge, UK
- 18.20 *CH-2:L09* **Linear Characterization at Shear Resonance of Lossy Piezoceramics Using a Non-standard, Thickness Poled, Shear Plate**
L. PARDO¹, F. MONTERO DE ESPINOSA², A. GARCÍA¹, K. BREBOEL³, ¹ICMM-CSIC, Cantoblanco, Madrid, Spain; ²Instituto de Acústica, CETEF, CSIC, Madrid, Spain; ³Limiel ApS, Langebaek, Denmark

TUESDAY JUNE 8 AFTERNOON

Session CH-6.4 - Dynamics of Multiferroics

Room: ORSA MAGGIORE

Chair: R. PIRC, Slovenia

- 15.30 *CH-6.4:IL02* **Electromagnons in Perovskite Manganites**
A. PIMENOV, University of Wuerzburg, Wuerzburg, Germany
- 16.00 *CH-6.4:IL03* **Electric Modulation of Exchange Anisotropy in Multiferroic-ferromagnetic Heterostructures**
M. GAJEK^{1,3}, J. HERON², C-H. YANG¹, Y.H. CHU⁵, L.W. MARTIN⁴, R. RAMESH^{1,2}, ¹Dept. of Physics, University of California at Berkeley, Berkeley, CA, USA; ²Dept. of Materials Science, University of California at Berkeley, Berkeley, CA, USA; ³Dept. of Electrical Engineering and Computer Science, University of California at Berkeley, Berkeley, CA, USA; ⁴Dept. of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA; ⁵Dept. of Materials Science and Engineering, National Chiao Tung University, Hsin Chu, Taiwan, ROC
- 16.30 *CH-6.4:L04* **Strain Induced Ferroelectricity in Antiferromagnetic EuTiO₃ Thin Film**
S. KAMBA, V. GOIAN, M. KEMPA, V. BOVTUN, Institute of Physics ASCR, Prague, Czech Republic; J.H. LEE, D.G. SCHLOM, C.J. FENNIE, Cornell University, Ithaca, NY, USA
- 16.50 *Break*

Session CH-6.3 - Magnetoelectric Characterization

Room: ORSA MAGGIORE

Chair: A. PIMENOV, Germany

- 17.20 *CH-6.3:L01* **Large Ferroelectric and Magnetic Hystereses coexisting in BiFeO₃ Thin Films**
M. OKUYAMA, JUNG-MIN PARK, T. KANASHIMA, Osaka University, Graduate School of Eng. Science, Dept. of Systems Innovation, Toyonaka, Japan
- 17.40 *CH-6.3:L02* **Magnetic and Electric Relaxor Behavior and Spin Lattice Coupling in Epitaxially Grown Multiferroic 0.8Pb(Fe_{1/2}Nb_{1/2})O₃-0.2Pb(Mg_{1/2}W_{1/2})O₃ Thin Films**
W. PENG, N. LEMÉE, J.L. DELLIS, **M.G. KARKUT**, LPMC, University of Picardy Jules Verne, Amiens, France; V.V. SHVARTSMAN, P. BORISOV, W. KLEEMANN, Angewandte Physik, University Duisberg-Essen, Duisberg, Germany; Z. TRONTELJ, J. HOLC, M. KOSEC, R. BLINC, Jozef Stefan Institute, Ljubljana; B. DKHIL, SPMS, Ecole Centrale Paris, Châtenay-Malabry, France
- 18.00 *CH-6.3:L04* **Control Magnetization Electrically Using LSMO/BFO Heterostructures**
LU YOU, **JUNLING WANG**, School of Materials Science & Engineering, Nanyang Technological University, Singapore

TUESDAY JUNE 8 AFTERNOON

Session CI-3 - Magnetic Oxide Thin Films and Heterostructures

Room: GIOVE

Chair: J. FONTCUBERTA, Spain

- 15.00 *CI-3:IL01* **Tuning the Electronic Properties of the LaAlO₃/SrTiO₃ Interface**
A. CAVIGLIA¹, N. REYREN¹, S. GARIGLIO¹, C. CANCELLIERI¹, S. THIEL², G. HAMMERL², D. JACCARD¹, M. GABAY³, T. SCHNEIDER⁴, J. MANNHART², **J.-M. TRISCONI**¹, ¹DPMC, University of Geneva, Geneva, Switzerland; ²Experimental Physics VI, Center for Electronic Correlations and Magnetism, Institute of Physics, University of Augsburg, Augsburg, Germany; ³Laboratoire de Physique des Solides, Université d'Orsay, Orsay, France; ⁴Physik Institut, University of Zurich, Zurich, Switzerland
- 15.30 *CI-3:IL02* **Magnetotransport and Magnetic Properties of All Oxide Magnetic Multilayers**
N. KELLER¹, B. BERINI¹, J. SCOLA¹, W. NOUN¹, A. FOUCHET¹, E. POPOVA¹, D. SCHMOOL², I. SHEIKIN³, A. DEMUIR³, P. LEJAY⁴, ¹GEMaC / CNRS - UVSQ, Versailles, France; ²FIMUP, Universitat do Porto, Porto, Portugal; ³LNCMI, CNRS, Grenoble, France; ⁴Institut Néel, Grenoble, France
- 16.00 *CI-3:L03* **Measurement of the Transport Spin Polarization of Ru Doped CrO₂ Using Point-contact Andreev Reflection**
M.S. OSOFSKY, Naval Resarch Laboratory, Washington, DC, USA; K. WEST, S.A. WOLF, J. LU, University of Virginia, Charlottesville, VA, USA
- 16.20 *CI-3:L05* **Role of Defects and Interfaces in Ferromagnetism of SnO₂ Based Heterostructures**
A. ESPINOSA¹, M. GARCÍA-HERNÁNDEZ¹, N. MENÉNDEZ², C. PRIETO¹, A. DE ANDRÉS¹, ¹Inst. de Ciencia de Materiales de Madrid, Consejo Superior de Investigaciones Científicas, Cantoblanco, Madrid, Spain; ²Dpto de Química-Física Aplicada, Univ. Autónoma de Madrid, Cantoblanco, Madrid, Spain

16.40 *Break*

Chair: J.-M. TRISCONI, Switzerland

- 17.10 *CI-3:IL06* **Tunable Interfaces in Manganite Multilayers**
C. PANAGOPOULOS, Nanyang Technological University, Singapore, and University of Crete, Crete
- 17.40 *CI-3:IL07* **Phase Transitions in Narrow Band Manganite Thin Films**
U. SCOTTI DI UCCIO¹, L. ARUTA, C. BARONE, C. CANTONI, A. GALDI, A. GEDDO LEHMANN, F. CONGIU, N. LAMPIS, L. MARITATO, F. MILETTO GRANOZIO, S. PAGANO, P. PERNA, M. RADOVIC, ¹CNR-INFN, Complesso Monte S. Angelo, Napoli, Italy
- 18.10 *CI-3:IL08* **Multichannel Transport of a Two-dimensional Electron Gas at the Interface in Oxide Superlattices**
J.S. KIM, S.S.A. SEO, R.K. KREMER, H.-U. HABERMEIER, B. KEIMER, **HO NYUNG LEE**, Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA; Max-Planck-Institut für Festkörper-forschung, Stuttgart, Germany

TUESDAY JUNE 8 AFTERNOON

Session CJ-1 - Science of Silicate Ceramics

Room: **SMERALDO 1**

Chair: V. DUCMAN, Slovenia

- 15.00 *CJ-1:IL08* **Use of Phase Diagrams to Guide Ceramic Production from Alternative Raw Materials**
A.M. SEGADAES, University of Aveiro, Dept. of Ceramics and Glass Engineering (CICECO), Aveiro, Portugal
- 15.30 *CJ-1:IL09* **Clay Structural Transformations During Firing**
P. BLANCHART, S. DENIEL, N. TESSIER-DOYEN, GEMH, ENSCI, Limoges, France
- 16.00 *CJ-1:L10* **Effect of Marl Addition on the Properties of Wall and Floor Tile Bodies**
K. KAYACI^a, A. KARA^{b,c}, Z.E. OYTAÇ^{a,c}, C. GENÇ^d, ^aTermal Seramik Sanayi Ltd., Bilecik, Turkey; ^bAnadolu University, Dept. of Material Sci. and Eng., Eskisehir, Turkey; ^cCeramic Research Center, Eskisehir, Turkey; ^dIstanbul Technical University, Dept. of Geological Eng., Istanbul, Turkey
- 16.20 *CJ-1:L11* **The Role of the Kaolinite-mullite Reaction Sequence in Moisture Mass Gain in Fired Kaolinite**
H. MESBAH, M.A. WILSON, M.A. CARTER, School of Mechanical, Aerospace and Civil Engineering, The University of Manchester, Manchester, UK
- 16.40 *Break*

Session CK-1 - Preparation

Room: **SMERALDO 1**

Chair: K.J.D. MacKENZIE, Australia

- 17.10 *CK-1:IL08* **Preparation and Stability of Alkali Activated Materials from Slags and Fly-ashes**
V. BILEK, ZPSV a.s., Brno, Czech Republic
- 17.40 *CK-1:L10* **Study and Characterization of in-situ Geomaterial Foam by DTA-TGA Coupled with Mass-spectroscopy**
E. PRUD'HOMME, P. MICHAUD, S. ROSSIGNOL, GEMH, Limoges, France; E. JOUSSEIN, GRESE, Limoges, France; J-M. CLACENS, S. ARII-CLACENS, LACCO, Poitiers, France
- 18.00 *CK-1:L11* **Geopolymer Synthesis from SiO₂ and Al(OH)₃ Precursors Using K and Na Activators**
M. LIZCANO, H. KIM, M. RADOVIC, Texas A&M University, College Station, TX, USA
- 18.20 *CK-1:L12* **Fly Ash Beneficiation and Geopolymer Properties**
N.W. CHEN-TAN, A. VAN RIESSEN, Curtin University, Perth, Australia

TUESDAY JUNE 8 AFTERNOON

Session CL-2 - Testing

Room: **SMERALDO 3**

Chair: G. OPREA, Canada

- 15.00 *CL-2:IL05* **Standard Testing of Refractories**
X. BUTTOL, INISMa - Institut National Interuniversitaire des Silicates, Sols et Matériaux, Mons, Belgium; J.-P. ERAUW, CRIBC - Centre de Recherche de l'Industrie Belge de la Céramique, Belgium
- 15.30 *CL-2:IL06* **Characterisation of the Fracture Path in "Flexible" Refractories**
H. HARMUTH, University of Leoben, Leoben, Austria
- 16.00 *CL-2:L07* **Mechanical Evaluation of Al₂O₃-MgO-C Refractory Bricks by Stress-strain Curves**
V. MUNOZ, A.L. CAVALIERI, A.G. TOMBA MARTINEZ, División Cerámicos - INTEMA, Mar del Plata, Argentina
- 16.20 *CL-2:L08* **Resistance Parameters During Water Quench Test of Low Cement Castable**
S. MARTINOVIC, M. VLAHOVIC, Institute for Technology of Nuclear and Other Mineral Raw Materials, Belgrade, Serbia; J. MAJSTOROVIC, University of Belgrade, Faculty of Mining and Geology, Belgrade, Serbia; T. VOLKOV-HUSOVIC, University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia
- 16.40 *Break*

Session CL-3 - Manufacturing, Selection, Design and Use

Room: **SMERALDO 3**

Chair: N.A. STONE, USA

- 17.00 *CL-3:IL06* **Analysis and Interpretation of Liquid Oxide Corrosion Microstructure**
J. POIRIER, CEMHTI-CNRS, Orleans, France
- 17.30 *CL-3:IL07* **Aluminum Titanate Refractories for Molten Aluminum**
Y. OHYA, Gifu University, Gifu, Japan
- 18.00 *CL-3:L08* **Interactions Between Superalloys and Mould Materials for Investment Casting of Turbine Blades**
F. VALENZA, IENI-CNR, Genova, Italy; R. NOWAK, N. SOB CZAK, Foundry Research Inst., Krakow, Poland; A. PASSERONE, IENI-CNR, Genova, Italy; M. DI FOGGIA, Europea Microfusioni Aerospaziali, Morra De Sanctis, Italy; M.L. MUOLO, IENI-CNR, Genova, Italy
- 18.20 *CL-3:L09* **Effect of Grain Boundary Cracks on Corrosion Behavior of Aluminum Titanate Ceramics in Molten Aluminum Alloy**
M. TANAKA, K. KASHIWAGI, N. KAWASHIMA, S. KITAOKA, Japan Fine Ceramics Center, Nagoya, Japan; O. SAKURADA, Y. OHYA, Gifu University, Gifu, Japan
- 18.40 *CL-3:L10* **Interaction Between CaZrO₃ Ceramic and Titanium Alloys Melt**
CHONGHE LI, YONGHUI GAO, XIONGGANG LU, WEIZHONG DING, ZHONGMING REN, KANG DENG, Shanghai Key Laboratory of Modern Metallurgy & Materials Processing, Shanghai University, Shanghai, China

TUESDAY JUNE 8 AFTERNOON

Session CM-1 - Nanomaterials and Systems at Nanoscale

Room: **SMERALDO 2**

Chair: T. SASAKI, Japan

15.00 **CM-2:IL05 STEM Characterization of Atomic Structures and Segregated atoms at Ceramic Interface**
Y. IKUHARA^{1, 2, 3}, Y. SATO^{1, 2}, N. SHIBATA¹, T. MIZOGUCHI¹, T. YAMAMOTO^{1, 2}, ¹Institute of Engineering Innovation, The University of Tokyo, Tokyo, Japan; ²Nanostructures Research Laboratory, Japan Fine Ceramic Center, Nagoya, Japan; ³WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Japan
(rescheduled time as for Author request)

15.30 **CM-1:IL13 Inorganic Nanotubes (INT) and Fullerene-like Structures (IF): Progress Report**
R. TENNE, Dept. of Materials and Interfaces, Weizmann Institute of Science, Rehovot, Israel

16.00 **CM-1:IL14 Rare - Earth - Doped Silicate Glass - Ceramic Thin Films for Integrated Optical Devices**
S. BERNESCHI¹, G. ALOMBERT-GOGET², C. ARMELLINI^{2, 3}, M. BRENCI¹, I. CACCIARI¹, A. CHIAPPINI², A. CHIASERA², M. FERRARI², S. GUDDALA^{2, 4, 5}, E. MOSER^{4, 2}, G. NUNZI CONTI¹, S. PELLI¹, G. C. RIGHINI¹, ¹IFAC - CNR, Nello Carrara Institute of Applied Physics, Sesto Fiorentino (FI), Italy; ²IFN-CNR, Institute of Photonics & Nanotechnology, CSMFO Lab., Povo (TN), Italy; ³FBK, Trento, Italy; ⁴Dipartimento di Fisica, University of Trento, Povo, Italy; ⁵School of Physics, University of Hyderabad, Hyderabad, India

16.30 *Break*

Chair: R. TENNE, Israel

17.00 **CM-1:L16 Er³⁺/Yb³⁺/Ce³⁺ Co-doped Fluoride Glass Ceramics Waveguides for Application in the 1.5 μ m Telecommunication Window**
B.R. BOULARD, I. SAVELII, C. DUVERGER-ARFUSO, Y. GAO, LdOF Laboratory, Université du Maine, Le Mans, France ; G. ALOMBERT, Y. JESTIN, M. FERRARI, IFN-SCFMO group, Trento, Italy; F. PRUDENZANO, DIASS, Politecnico di Bari, Bari, Italy

17.20 **CM-1:L17 Nanostructured Titania Films with Improved Photocatalytic Activity**
M. KURTOGLU, T. LONGENBACH, Y. GOGOTSI, Dept. of Materials Science and Engineering, A.J. Drexel Nanotechnology Institute, Drexel University, Philadelphia, PA, USA

17.40 **CM-1:L20 Fabrication of Fe-doped SnO₂-TiO₂ Spinodal Phase-Separated System and Its Semiconductive Properties**
M. HASHIMOTO, T. SEKINO, S.-I. TANAKA, IMRAM, Tohoku University, Sendai, Japan; T. SHIMIZU, T. KUSUNOSE, ISIR, Osaka Univ., Suita, Japan

18.00 **CM-1:L21 Coexistence of Multi-functions in Titanium Oxide Nanotubes Synthesized by a Simple Chemical Route**
TOHRU SEKINO¹, DONG-JIN PARK¹, SATOSHI TSUKUDA¹, TAKAFUMI KUSUNOSE², SHUN-ICHIRO TANAKA¹, ¹Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University, Sendai, Japan; ²The Institute of Scientific and Industrial Research (ISIR), Osaka University, Ibaraki, Osaka, Japan

Session CM-2 - Nanomaterials Characterization and Techniques

Room: **AMBRA**

Chair: G.M. CHOW, Singapore

- 17.00 *CM-2:L10* **New MoO₃-x Nanowire Based Materials for Polymer-fiber Composites**
V. DOMENICI¹, M. CONRADI², M. REMSKAR³, A. MRZEL³, M. CHAMBERS⁴, B. ZALAR³, ¹Dipartimento di Chimica e Chimica Industriale, Università degli studi di Pisa, Pisa, Italy; ²Institute of Metals and Technology, Ljubljana, Slovenia; ³J. Stefan Institute, Ljubljana, Slovenia; ⁴Krsko Nuclear Power Plant, Krsko, Slovenia
- 17.20 *CM-2:L11* **Structure Analysis of Nanocomposite Materials for Energy Related Applications**
M.L. TRUDEAU, A.M. SERVENTI, K. ZAGHIB, Materials Science, Hydro-Quebec Research Institute, Varennes, Quebec, Canada; D. ANTONELLI, Sustainable Energy Research Center, University of Glamorgan, Pontypridd, UK; R. GAUVIN, Dept. of Mining and Materials Engineering, McGill University, Montréal, Québec, Canada
- 17.40 *CM-2:L13* **XPS Study of In Situ One-Step Ammination of Nanocrystalline Diamond Films**
S. TORRENGO^{1,2}, A. MIOTELLO¹, G. SPERANZA², L. MINATI², M. FERRARI³, A. CHIASERA³, M. DIPALO⁴, E. KOHN⁴, ¹Physics Dep. University of Trento, Povo, Trento, Italy; ²FBK-IRST, Povo, Trento, Italy; ³CNR-IFN, CSMFO Lab., Povo, Trento, Italy; ⁴Institute of Electron Devices & Circuits, Ulm University Ulm, Germany
- 18.00 *CM-2:L14* **Manufacturing of Barium Titanate Thin Films with Designed Microstructure by a Sol-gel Process: In-situ SAXS Investigation of the Precursor System**
T.M. STAWSKI, S.A. VELDHUIS, J.E. TEN ELSHOF, H.L. CASTRICUM, D.H.A. BLANK, University of Twente, Inorganic Materials Science group, Enschede, The Netherlands

WEDNESDAY JUNE 9 MORNING

Session CA-2 - Colloidal Processing

Room: AUDITORIUM

Chair: Y. SAKKA, Japan

- 8.30 **CA-2:IL10 Interparticle Forces the Key to Colloidal Processing: from Porous Nanostructured Films to Transparent Polycrystalline Alumina**
P. BOWEN¹, M. STUER¹, Z. ZHE², U. ASCHAUER³, ¹Laboratoire de Technologie des Poudres, EPFL, Lausanne, Switzerland; ²Dept. of Physical, Inorganic and Structural Chemistry, Arrhenius Lab., Stockholm University, Stockholm, Sweden; ³Dept. of Chemistry, Princeton University, Princeton, USA
- 9.00 **CA-2:IL11 Theoretical and Experimental Analyses of Colloidal Processing of Nanoparticles**
Y. HIRATA, K. MATSUSHIMA, S. BABA, N. MATSUNAGA, S. SAMESHIMA, Kagoshima University, Kagoshima, Japan
- 9.30 **CA-2:IL12 Colloidal Processing of Nanosized Titania Suspensions**
R. MORENO, Instituto de Ceramica y Vidrio, CSIC, Madrid, Spain
- 10.00 **CA-2:IL13 An Impact of Filter Pressing of Multicomponent Nano-powders on the Composite Microstructure**
W. PYDA, N. MOSKALA, L. MIROWSKA, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland
- 10.30 *Break*

Chair: R. MORENO, Spain

- 11.00 **CA-2:IL14 Hierarchical Porous Materials through Microfluidics**
A.R. STUDART, R.M. ERB, ETH Zurich, Department of Materials, Zurich, Switzerland
- 11.30 **CA-2:IL15 Surface Characterization and Chemistry for Ceramic Powder Processing**
T. SHIRAI, Nagoya Institute of Technology, Tajimi, Japan

Session CA-5 - Innovation in Processing Equipment and Technology

- 12.00 **CA-5:IL01 Rapid Prototyping of Lead-free Piezoceramics**
A. DITTMAR, X. TIAN, J.G. HEINRICH, Institute of Nonmetallic Materials, Clausthal University of Technology, Clausthal-Zellerfeld, Germany; W. BRAUE, German Aerospace Center, Cologne, Germany
- 12.30 **CA-5:IL02 Pulsed Electric Current Sintering of Electrical Discharge Machinable Ceramics**
J. VLEUGELS¹, O. MALEK^{1,2}, K. VANMEENSEL¹, S. HUANG¹, S. RAN¹, O. VAN DER BIEST¹, B. LAUWERS², K.U. Leuven, ¹Dept. of Metallurgy and Materials Engineering; ²Dept. of Mechanical Engineering, Leuven, Belgium

WEDNESDAY JUNE 9 MORNING

Session CB-5 - Microwave Processing

Room: LE PLEIADI

Chair: M. WILLERT-PORADA, Germany

- 9.00 *CB-5:IL01* **Microwave Processing of Ceramic-based Materials: Latest Developments and Trends**
M. WILLERT-PORADA, Faculty of Engineering Science, University of Bayreuth, Bayreuth, Germany
- 9.30 *CB-5:IL02* **Synthesis of High Performance Ceramics Materials via Microwave Processing**
H. TAKIZAWA, Dept. of Applied Chemistry, Tohoku University, Sendai, Japan
- 10.00 *CB-5:IL03* **Microwave-assisted Routes to Inorganic Particles and Films in Organic Solvents**
M. NIEDERBERGER, Lab. for Multifunctional Materials, Dept. of Materials, ETH Zürich, Zürich, Switzerland
- 10.30 *CB-5:L04* **Microwave Absorbency Change of Zirconia Powder and Fiber during Vacuum Heating**
S. SANO, S. KAWAKAMI, Y. TAKAO, S. TAKAYAMA, Y. SATO, AIST, Nagoya-city, Aichi, Japan; NIFS, Toki-city, Gifu, Japan
- 10.50 *CB-5:L05* **Microwave Assisted Reaction Sintering of ZrSiO₄/ α -Al₂O₃ Mixture**
O. ERTUGRUL, S. AKPINAR, I.M. KUSOGLU, K. ONEL, Dept. of Metallurgical and Materials Engineering, Dokuz Eylul University, Buca-Izmir, Turkey
- 11.10 *Break*

Session CB-7 - Hybrid Materials

Room: LE PLEIADI

Chair: T. SATO, Japan

- 11.40 *CB-7:IL01* **Novel Strategies for the Design of Nanostructured Advanced Porous Materials**
C. SANCHEZ, Lab. de Chimie de la Matière Condensée de Paris, CNRS, Université Pierre et Marie Curie, Collège de France, Paris, France
- 12.20 *CB-7:IL02* **Morphosynthesis of Nanoporous Materials by Microwave**
SANG-EON PARK, Lab. of Nano-Green Catalysis and Nano Center for Fine Chemicals Fusion Tech., Dept. of Chemistry, Inha University, Incheon, Korea

WEDNESDAY JUNE 9 MORNING

Session CB-11.3 - SHS of Ceramic Powders

Room: ORSA MINORE

Chair: E.A. LEVASHOV, Russia

- 9.00 *CB-11.3:IL01* **Composites Produced by SHS Method - Current Development and Future Trends**
J. LIS, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland
- 9.30 *CB-11.3:IL02* **Carbon Combustion Synthesis of Ceramic Oxide Nano-powders**
K. MARTIROSYAN, Dept. of Chemical and Biomolecular Engineering, University of Houston, Houston, TX, USA
- 10.00 *CB-11.3:L04* **Double SHS of W2B5 Powder from CaWO4 and B2O3**
S. YAZICI, B. DERIN, Metallurgical and Materials Engineering Dept., Istanbul Technical University, Maslak, Istanbul, Turkey
- 10.20 *Break*

Session CB-11.4 - Direct Production of SHS Products and their Characterization

Room: ORSA MINORE

Chair: S.L. KHARATYAN, Armenia

- 10.50 *CB-11.4:IL01* **Advances SHS-Ceramic Materials for Surface Engineering Technologies**
E.A. LEVASHOV, V.V. KURBATKINA, YU.S. POGOZHEV, A.E. KUDRYASHOV, National University of Science and Technology "MISIS", Moscow, Russia
- 11.20 *CB-11.4:IL02* **Self-propagating High-temperature Synthesis of Iron- and Copper-matrix Cermets**
A. CHRYSANTHOU, School of Engineering and Technology, University of Hertfordshire, Hatfield, UK
- 11.50 *CB-11.4:L03* **Combustion Synthesis of SiAlON Ceramics**
K.L. SMIRNOV, Institute of Structural Macrokinetics and Materials Science, RAS, Chernogolovka, Moscow Region, Russia
- 12.10 *CB-11.4:L04* **Sintering of Ti2AlC Powders Obtained by SHS Process**
L. CHLUBNY, J. LIS, M.M. BUCKO, AGH University of Science and Technology, Dept. of Ceramics and Refractories, Cracow, Poland

Session CC-1 - Corrosion

Room: ZENITH

Chair: M. HADFIELD (*Programme Chair*)

- 10.45 *Welcome*
- 10.50 **CC-1:IL02 Interaction Between Corrosion and Wear of Silicon Carbide**
K.G. NICKEL, V. PRESSER, C. BERTHOLD, University of Tuebingen, Applied Mineralogy, Tuebingen, Germany
- 11.20 **CC-1:IL03 Stability of Oxides in High Temperature Water Vapor**
E.J. OPILA, NASA Glenn Research Center, Cleveland, OH, USA
- 11.50 **CC-1:L04 Influence of Hydrofluoric Acid Concentration and pH on Corrosion of Porous Multi-oxide Engineering Ceramics**
M. MANNILA, A. HÄKKINEN, Lappeenranta University of Technology, Lappeenranta, Finland
- 12.10 **CC-1:L05 Design of Nano- and Meso-structured Sol-gel Coatings**
S. DE MONREDON-SENANI, E. CAMPAZZI, EADS Innovation Works, Metallic Technologies and Surface Treatment Engineering, Suresnes, France; C. SANCHEZ, F. RIBOT, L. NICOLE, J. MONGET, Lab. Chimie de la Matière Condensée de Paris, UMR CNRS 7574-UPMC, Paris, France
- 12.30 **CC-1:L06 Electrochemical Corrosion of Silicon Carbide Ceramics in Aqueous Solutions**
M. HERRMANN*, U. SYDOW**, K. SEMPFF*, M. SCHNEIDER*, H.J. KLEEBE***, A. MICHAELIS**, *Fraunhofer Inst. for Ceramic Technologies and Systems, Dresden, Germany; **TU Dresden, Inst. of Materials Science, Dresden, Germany; ***Technische Universität Darmstadt, Inst. for Applied Geosciences, Darmstadt, Germany

WEDNESDAY JUNE 9 MORNING

Room: ZENITH

Chair: Y. NAIDICH, Ukraine

Session CD-2 - Theory, Modelling and Simulation of Interface Interactions

- 8.30 *CD-2:IL04* **First-principles DFT Modelling of Interface Adhesion in Metal/Ceramic Systems**
C. ELSAESSER, Fraunhofer IWM, Freiburg, Germany
- 9.00 *CD-2:IL05* **Link of Micro- and Macro- in Wetting Phenomena: DFT Modeling, Binding at the Interface and Contact Angle**
D. FUKS, SH. BARZILAI, N. FROUMINA, N. FRAGE, Materials Engineering Dept., Ben Gurion University, Beer Sheva, Israel; E. GLICKMAN, Physical Electronics Dept., Tel Aviv University, Tel Aviv, Israel

Session CD-3 - Advances in Joining Methods and Materials

- 9.30 *CD-3:IL06* **Reactive Air Brazing (RAB): A Novel Joining Technique for High-temperature Electrochemical Applications**
J.Y. KIM, K.S. WEIL, Pacific Northwest National Lab., Richland, WA, USA
- 10.00 *CD-3:IL07* **Wetting and Joining in Transition Metals Diborides**
M.L. MUOLO*, F. VALENZA*, N. SOBCZAK**, A. PASSERONE*,
*IENI-CNR, Genova, Italy; **Foundry Research Institute, Cracow, Poland
- 10.30 *Break*

WEDNESDAY JUNE 9 MORNING

Session CE-1 - Ultra High Temperature Ceramics

Room: **VENERE**

Chair: J. DUSZA, Slovakia

- 9.00 *CE-1:IL06* **Mechanical and Electrical Properties of AlN-SiC Solid Solutions**
J. TATAMI, R. KOBAYASHI, T. WAKIHARA, K. KOMEYA, T. MEGURO, Yokohama National University, Yokohama, Japan; T. RONG, T. GOTO, Tohoku University, Sendai, Japan
- 9.30 *CE-1:IL07* **Transparent Alumina for MWIR Windows and Domes**
M.R. PASCUCCI, M.V. PARISH, CeraNova Corporation, Marlborough, MA, USA
- 10.00 *CE-1:L08* **Synthesis and Characterization of Multi-walled Carbon Nanotube Reinforced Tantalum Carbide Composites via Spark Plasma Sintering**
S.R. BAKSHI, V. MUSARAMTHOTA, A. AGARWAL, Plasma Forming Lab., Dept. of Mechanical and Materials Engineering, Florida International University, Miami, FL, USA
- 10.20 *CE-1:L09* **Microstructure and Toughening Mechanisms of Reinforced ZrB₂-based Ceramics**
D. SCITI, L. SILVESTRONI, V. MEDRI, S. GUICCIARDI, CNR-ISTEC, Institute of Science and Technology for Ceramics, Faenza, Italy
- 10.40 *CE-1:L10* **Study of the Spark Plasma Sintering Behaviour of Microsized and Nanosized Zirconium Oxycarbide (ZrC_xO_y) Powders**
J. DAVID, M. GENDRE, A. MAÎTRE, G. TROLLIARD, B. SOULESTIN, Lab. Sciences des Procédés Céramiques et Traitements de Surface, UMR CNRS 6638, UFR Sciences et Techniques, Limoges, France
- 11.00 *Break*

Session CE-2 - Nitride, Carbide and Boride Ceramics

Room: **VENERE**

Chair: W.A. ELLINGSON, USA

- 11.30 *CE-2:L10* **Ceramic Tool Materials for High Speed Cutting Process**
G. GORNY, R. PAMPUCH, L. SOBIERSKI, M. RACZKA, Faculty of Mats Science and Ceramics, University of Science and Technology, Cracow, Poland
- 11.50 *CE-2:L11* **Synthesis of Needle-like TiN Particles and their Application to TiN-Si₃N₄ Composite**
H. KIYONO, Y. NIHEI, Y. MIYAKE, S. SHIMADA, Hokkaido University, Sapporo, Japan; T. TSUMURA, Oita University, Oita, Japan
- 12.10 *CE-2:L12* **Boron Suboxide-based Composites: Thermal Stability and Tribological Testing**
I. SIGALAS, C. FREEMANTLE, University of Witwatersrand, Johannesburg, Wits, South Africa; M. HERRMANN, Fraunhofer Institute of Ceramic Technologies and Systems, Dresden, Germany
- 12.30 *CE-2:IL08* **Development of Scanning Microwave Technology for Ceramics in Extreme Environments**
J.R. LITTLE, Jr., Evisive, Inc., Baton Rouge, LA, USA

Sub-session CF-4.1 - Ionic, Mixed and Electronic Conductors

Room: ALBA 2

Chair: S. BARNETT, USA

- 8.30 *CF-4.1:IL01* **Advances in Novel Ionic Conductors for Electrochemical Applications**
S. SKINNER, R. BAYLISS, R. PACKER, Dept. of Materials, Imperial College London, London, UK
- 9.00 *CF-4.1:IL02* **Modeling, Simulation, and In Situ Characterization of Electrode Materials for Solid Oxide Fuel Cells**
M. LYNCH, K. BLINN, XIAXI LI, MEILIN LIU, Center for Innovative Fuel Cell and Battery Technologies School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, GA, USA
- 9.30 *CF-4.1:IL03* **Protons in Ceramics: Effects of the Nanoscale**
G.C. MATHER, D. PEREZ-COLL, Instituto de Ceramica y Vidrio, CSIC, Cantoblanco, Madrid, Spain
- 10.00 *CF-4.1:L04* **Thermo-chemo-mechanical Modelling of Mixed Conductors**
O. VALENTIN, E. BLOND, Institut PRISME (EA 4229, University of Orléans), Polytech'Orléans, Orléans, France; N. RICHET, Air Liquide CRCD, Jouy en Josas, France
- 10.20 *CF-4.1:L05* **Thermo-mechanical Characterization of Scandia and Ceria Doped Zirconia- Electrolyte Material for Intermediate Temperature Solid Oxide Fuel Cells**
W. LIM, M. RADOVIC, Texas A&M University, USA; N. ORLOVSKAYA, University of Central Florida, USA; T. GRAULE, J. KUEBLER, EMPA Swiss Federal Laboratories for Materials Testing and Research, Switzerland
- 10.40 *Break*

Chair: G.C. MATHER, Spain

- 10.50 *CF-4.1:IL06* **Three-dimensional Measurements of SOFC Electrode Microstructure and Correlation with Electrochemical Performance**
S. BARNETT, J. WILSON, S. CRONIN, J. NICHOLAS, Matls Science Dept., Northwestern University, Evanston, IL, USA
- 11.20 *CF-4.1:IL07* **Migration of Oxide Ions in Ceria Doped with Rare-earth Cations Using First-principles Density Functional Study**
M. NAKAYAMA^{1,2}, M. MARTIN², ¹Dept. of Materials Science and Engineering, Nagoya Institute of Technology, Nagoya, Aichi, Japan, ²Institute of Physical Chemistry, RWTH Aachen University, Aachen, Germany
- 11.50 *CF-4.1:IL08* **Applications of Mixed Conducting Protection Layers in High Temperature Electrochemical Devices**
Z. GARY YANG, Pacific Northwest National Laboratory, Richland, WA, USA
- 12.20 *CF-4.1:L09* **Constrained and Non-constrained Sintering of Plasma-sprayed Zirconia Based Electrolytes for SOFCs**
C. CHRISTENN, A. ANSAR, DLR, Institute of Technical Thermodynamics, Stuttgart, Germany

WEDNESDAY JUNE 9 MORNING

Room: URANO

Chair: R. VASSEN, Germany

Session CG-2 - High Performance Protective Coatings in Oxidizing and Harsh Environments

- 10.30 *CG-2:IL13* **Development of Advanced Coatings for ITER and Future Fusion Devices**
J. MATEJICEK, P. CHRASKA, Institute of Plasma Physics ASCR, Praha, Czech Republic
- 11.00 *CG-2:L14* **Overview: How to Quantify the Capability of Yttrium Silicates to be Used as an Environmental Barrier Coating**
F. REBILLAT, E. COURCOT, University of Bordeaux, Lab. des Composites Thermostructuraux (LCTS) UMR 5801, Pessac, France

Session CG-4 - Thin Films and Coatings for Tribological and Multifunctional Applications

- 11.20 *CG-4:IL01* **Advanced Ceramic Tribological Layers by Thermal Spray Routes**
R. GADOW, University of Stuttgart, Stuttgart, Germany
- 11.50 *CG-4:IL02* **Preparation of TaN-Cu and TaN-Ag Nanocomposite Thin Films and their Anti-wear and Anti-bacteria Behaviors**
J.H. HSIEH, Dept. of Materials Engineering, Ming Chi University of Technology, Taishan, Taipei, Taiwan
- 12.20 *CG-4:L03* **Low Friction and Wear Resistant Carbon-, MoS₂- or Transition Metal Oxide-based Nanocomposite Coatings**
B.G. WENDLER, M. MAKÓWKA, K. WŁODARCZYK, M. NOLBRZAK, W.PAWLAK, A. RYLSKI, Lodz University of Technology, Institute of Materials Science and Engineering, Lodz, Poland

Session CH-3 - Magnetic Ceramics

Room: SIRIO

Chair: M. SIKORA, Poland

- 9.30 **CH-3:IL01 Magnetostrictive Galfenol Torque Sensor Devices for Smart by-Wire Steering System in Automobile Technology**
Y. FURUYA, T. OKAZAKI, Science and Technology, Hirosaki University, Hirosaki, Japan; C. SAITO, Namiki Precision Company, Japan; M. SHIMADA, Nissan Motors, Japan
- 10.00 **CH-3:IL02 Magnetic Oxide Thin Films Grown by Pulsed Laser Deposition for Applications in Spintronics**
L. MORELLON^{1,2,3}, J. ORNA^{1,3}, G. SIMON^{1,3}, P.A. ALGARABEL^{2,3}, J.A. PARDO^{1,4}, A. FERNANDEZ-PACHECO^{1,3}, C. MAGEN^{3,5}, J.M. DE TERESA^{2,3}, M.R. IBARRA^{1,2,3}, ¹Inst. de Nanociencia de Aragon, Universidad de Zaragoza, Zaragoza, Spain; ²Inst. de Ciencia de Materiales de Aragon, Universidad de Zaragoza-CSIC, Zaragoza, Spain; ³Depto de Fisica de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; ⁴Depto de Ciencia y Tecnologia de Materiales y Fluidos, Universidad de Zaragoza, Zaragoza, Spain; ⁵Inst. de Nanociencia de Aragon-ARAID, Universidad de Zaragoza, Zaragoza, Spain
- 10.30 **CH-3:L04 Oriented Barium Hexaferrite Thick Films Prepared by Electrophoretic Deposition in a Magnetic Field**
S. OVTAR, D. LISJAK, M. DROFENIK, Jozef Stefan Institute, Ljubljana, Slovenia

10.50 *Break*

Chair: Y. FURUYA, Japan

- 11.20 **CH-3:IL05 Beyond Conventional Magneto-optical Spectroscopy of Magnetic Oxides**
J.M. CAICEDO, G. HERRANZ, D. HRABOVSKÝ, F. SÁNCHEZ, I.C. INFANTE, J. FONTCUBERTA, Institut de Ciencia de Materials de Barcelona (ICMAB), CSIC, Bellaterra, Spain; R. RAMOS, S.K. ARORA, I.V. SHVETS, Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), School of Physics, Trinity College Dublin, Ireland
- 11.50 **CH-3:IL06 Spin and Orbital Magnetic Moments in Magnetic Double Perovskites Probed by X-ray Magnetic Circular Dichroism Under High Magnetic Fields**
M. SIKORA, PACS, AGH University of Science and Technology, Krakow, Poland
- 12.20 **CH-3:L07 Magnetoelectric Coupling in Multi-ferro Fe-Pd/PZT/Fe-Pd Laminate Composites**
T. OKAZAKI, Y. FURUYA, Y. SADO, Science and Technology, Hirosaki University, Hirosaki, Japan; C. SAITO, Namiki Precision Company, Japan

WEDNESDAY JUNE 9 MORNING

Session CH-6.4 - Dynamics of Multiferroics

Room: ORSA MAGGIORE

Chair: M. FIEBIG, Germany

- 9.00 *CH-6.4:IL05* **Soft X-ray Spectroscopic Investigations on Multiferroic Oxides**
JAE-HOON PARK, POSTECH, Pohang, Korea
- 9.30 *CH-6.4:IL07* **Piezoelectric Control of Magnetic Properties in Thin Film Heterostructures**
K. DÖRR, A.D. RATA, A. HERKLOTZ, O. BILANI-ZENELI, M.C. DEKKER, L. SCHULTZ, IFW Dresden, Dresden, Germany; M. REIBOLD, Triebenberglabor, TU Dresden, Germany; M.D. BIEGALSKI, H.M. CHRISTEN, Oak Ridge National Laboratory, Oak Ridge, TN, USA
- 10.00 *CH-6.4:IL08* **Magnetic Excitations in Multiferroics: an Inelastic Neutron Scattering Study**
M. BRADEN, II. Physikalisches Institut, University of Cologne, Cologne, Germany
- 10.30 *Break*

Session CB-6.6 - New Effects

Room: ORSA MAGGIORE

Chair: Jae-Hoon PARK, Korea

- 11.00 *CH-6.6:IL06* **Flexomagnetoelectric Interaction and New Effects in Multiferroics**
A.P. PYATAKOV^{1,2}, A.K. ZVEZDIN², ¹Physics Department, M.V. Lomonosov Moscow State University, Moscow, Russia; ²A.M. Prokhorov General Physics Institute, Russian Academy of Science, Moscow, Russia
- 11.30 *CH-6.6:IL07* **Local Polarization-dependent Electron Transport through Uni- and Multiaxial Ferroelectric Oxides**
P. MAKSYMOWYCH, A.P. BADDORF, Center for Nanophase Materials Science, Oak Ridge National Laboratory, Oak Ridge, TN, USA
- 12.00 *CH-6.6:IL08* **Nonlinear Optics Applied to Magnetolectric Multiferroics**
M. FIEBIG, HISKP, University of Bonn, Bonn, Germany
- 12.30 *CH-6.6:IL09* **Photoconductivity in Ferroelectric BiFeO₃-PbTiO₃ Thin Films**
XIAOWEN ZHOU, SHENGWEN YU, BINGRONG YUAN, JINRONG CHENG, School of Material Science and Engineering, Shanghai, China

WEDNESDAY JUNE 9 MORNING

Session CI-4 - Coexistence of Superconductivity and Magnetism

Room: GIOVE

Chair: H. SRIKANTH, USA

- 9.00 *CI-4:IL01* **Antiferromagnetism and High-Tc Superconductivity in Cuprates**
H. MUKUDA, Graduate School of Engineering Science, Osaka University, Osaka, Japan
- 9.30 *CI-4:IL02* **Coexistence of Superconductivity and Magnetism in Ruthenocuprates**
M. CUOCO, P. GENTILE, M. GOMBOS, A. VECCHIONE, C. NOCE, Lab. Regionale SuperMat, INFN-CNR, Baronissi (SA), Italy and Dipartimento di Fisica "E.R. Caianiello", Università di Salerno, Fisciano (SA), Italy
- 10.00 *CI-4:IL03* **Inhomogeneous Superconductivity and 1/8 Problem in the Cuprates**
Y. KOIKE, T. ADACHI, Y. TANABE, Dept. of Applied Physics, Tohoku University, Sendai, Japan
- 10.30 *CI-4:L04* **Investigations for the Growth of Large Underdoped Bi₂Sr₂CaCu₂O_{8+d} Single Crystals and Neutron Scattering Measurements**
S. DE ALMEIDA-DIDRY, F. GIOVANNELLI, I. MONOT-LAFFEZ, LEMA, UMR 6157 CNRS-CEA, Université François Rabelais, Blois, France; Y. SIDIS, P. BOURGES, Laboratoire Léon Brillouin (LLB), CEA-CNRS, CEA-Saclay, France
- 10.50 *CI-4:L05* **Synthesis of Magnetic Nanoparticles and its Application to Obtain YBCO Nanocomposite Thin Films: Ex Situ Approach**
F. MARTINEZ-JULIAN, S. RICART, A. POMAR, A. PALAU, J. ARBIOL, F. SANDIUMENGE, T. PUIG, X. OBRADORS, L. PÉREZ-MIRABET, R. YÁÑEZ, J. ROS, ICMAB-CSIC, Barcelona, Spain
- 11.10 *Break*

Session CI-5 - Novel Synthesis and Processing Techniques

Room: GIOVE

Chair: Y. KOIKE, Japan

- 11.40 *CI-5:IL01* **Flux-mediated Epitaxy of Complex Oxides**
Y. MATSUMOTO, Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan
- 12.10 *CI-5:IL03* **Iron-based Superconductors FeSe and FeTe**
Y. TAKANO, National Institute for Materials Science, Tsukuba, Japan

WEDNESDAY JUNE 9 MORNING

Session CJ-2 - Innovation in the Silicate Ceramics Industry

Room: **SMERALDO 1**

Chair: S.K. DAS, India

- 9.30 *CJ-2:IL01* **Long-term Optical and Thermal Examinations of Ceramic Wall System with Solar-altitude Dependent Reflectance**
H. KAKIUCHIDA, Materials Research Inst. for Sustainable Development, National Inst. of Advanced Industrial Science and Technology, Nagoya, Japan
- 10.00 *CJ-2:L03* **Consolidation of Sand by Alkaline Silicate Solution**
S. LUCAS, J. SORO, S. ROSSIGNOL, GEMH-ENSCI, Limoges, France; J-L. GELET, FERRAZ-SHAWMUT, Saint Bonnet-de-Mure, France
- 10.20 *CJ-2:L04* **Effect of Alkaline Earth Oxide on Firing Behaviour of Single Fired Wall Tile Bodies**
O. CENGIZ^a, A. KARA^{a, b}, ^aDept. of Material Science and Engineering, Anadolu University, Eskisehir, Turkey; ^bCeramic Research Center, Eskisehir, Turkey
- 10.40 *Break*

Chair: J.Ma. RINCON, Spain

- 11.10 *CJ-2:IL05* **Innovative Use of Industrial Solid Waste in Silicate Ceramics**
S.K. DAS, Central Glass & Ceramic Research Institute, Kolkata, India
- 11.40 *CJ-2:IL06* **Lightweight Aggregate Processed from Waste Materials**
V. DUCMAN, ZAG Ljubljana, Ljubljana, Slovenia; B. MIRTIC, NTF, Ljubljana, Slovenia
- 12.10 *CJ-2:L07* **Development of Photochromic Coatings on Ceramic Tiles**
B. ATAY^{1,2}, M. GURBUZ¹, A. KUCUK², A. DOGAN^{1,3}, ¹Anadolu University, Dept. of Material Science and Eng., Eskisehir, Turkey; ²Kaleseramik Canakkale Kalebodur Seramik Sanayi A.S., Can-Canakkale, Turkey; ³Advanced Technologies Reseach Center (ITAB), Anadolu Univesity, Eskisehir, Turkey

WEDNESDAY JUNE 9 MORNING

Session CK-1 - Preparation

Room: **SMERALDO 3**

Chair: H.W. NUGTEREN, The Netherlands

- 9.00 *CK-1:L13* **Geopolymer Binders in Composite Cements and Ceramic-like Materials**
Ch. KAPS, M. HOHMANN, Bauhaus-University Weimar, Building Chemistry, Weimar, Germany
- 9.30 *CK-1:L15* **Use of Sodium Silicate Gel as Precursor of Binder for Cold Consolidated Materials**
M.T. TOGNONVI, **J. SORO**, S. ROSSIGNOL, J.P. BONNET, GEMH-ENSCI, Limoges, France
- 9.50 *CK-1:L16* **New Geopolymers Based on Rice Husk Ash**
Y. LUNA GALIANO, C. FERNÁNDEZ PEREIRA, J. RAMÓN MOLAS FLORES, University of Seville, Chemical and Environmental Eng. Dept., Seville, Spain
- 10.10 *CK-1:L17* **Geopolymer Development by Powders of Metakaolin and Wastes in Thailand**
C. TIPPAYASEM¹, S. BUNSARI³, L. PUNSUKUMTANA³, S. SAJJAVANICH², D. CHAYSUWAN¹, ¹Dept. of Materials Engineering, Kasetsart University, Bangkok, Thailand; ²Dept. of Civil Engineering, Kasetsart University, Bangkok, Thailand; ³Dept. of Science Service, Ministry of Science and Technology, Bangkok, Thailand
- 10.30 *Break*

Chair: J.S.J. VAN DEVENTER, Australia

- 11.00 *CK-1:L19* **Chemical and Physical Features Governing the Properties of Geopolymers Produced from Fly Ash**
H.W. NUGTEREN, M.T. KREUTZER, Delft University of Technology, Product and Process Eng. Group, Delft, The Netherlands; G.-J. WITKAMP, Delft University of Technology, Process Equipment Group, Delft, The Netherlands
- 11.30 *CK-1:L20* **Physical, Mechanical and Micro-structural Properties of Fly-Ash Based Geopolymeric Bricks Produced by Pressure Forming Process**
O. ARIÖZ, Cimsa, Ready-Mixed Concrete Company, Eskisehir, Turkey; **K. KILINC**, M. TUNCAN, A. TUNCAN, O. ZEYBEK, Dept. of Civil Eng., Anadolu University, Eskisehir, Turkey; T. KAVAS, Dept. of Mats Sci. & Eng., Afyon Kocatepe University, Afyonkarahisar, Turkey
- 11.50 *CK-1:L21* **Lightweight Geopolymer Materials for Insulating Applications: Electric and Thermal Properties**
E. KAMSEU¹, C. LEONELLI¹, A. LIBBRA², A. MUSCIO², ¹Dept. of Materials and Environmental Eng., ²Dept. of Mechanical and Civil Eng., University of Modena and Reggio Emilia, Modena, Italy
- 12.10 *CK-1:L22* **Durability of Geopolymer Concrete upon Seawater Exposure**
S. ASTUTININGSIH, D.M. NURJAYA, H.W. ASHADI, D. DHANESWARA, N. SWASTIKA, Faculty of Engineering, University of Indonesia, Depok, Indonesia

WEDNESDAY JUNE 9 MORNING

Session CL-3 - Manufacturing, Selection, Design and Use

Room: **TURCHESE**

Chair: J. POIRIER, France

- 8.30 *CL-3:L03* **Application of Organic Thickening Agents to the Rheology Study of Ceramic Slurries Used in the Investment Casting Process**
J. FERENC¹, H. MATYSIAK², J. MICHALSKI³, K.J. KURZYDLOWSKI¹,
¹Faculty of Materials Eng., Warsaw University of Technology, Warsaw, Poland; ²University Research Centre "Functional Materials", Warsaw University of Technology, Warsaw, Poland; ³Materials Engineers Group Sp. z o.o., Warsaw, Poland
(rescheduled time as for Author request)
- 8.50 *CL-3:IL11* **Engineered Expansion Design of in situ Spinel Castables**
M.A.L. BRAULIO, V.C. PANDOLFELLI, Federal University of Sao Carlos, Materials Engineering Dept., Materials Microstructure Engineering Group - GEMM, Sao Carlos, SP, Brazil
- 9.20 *CL-3:IL12* **Novel Refractory Development for Synthetic Rutile Manufacture via the Becher Process**
N.A. STONE, CSIRO Process Science & Engineering, Melbourne, Victoria, Australia; W.W. WRIGHT, Rio Tinto, Melbourne, Victoria, Australia; M.O'BYRNE, S.BOW, Iluka Resources Pty Ltd, Geraldton, Western Australia, Australia
- 9.50 *CL-3:IL13* **Nanostructured Refractories: Current Situation and Future Prospects**
SHAOWEI ZHANG, Dept. of Engineering Materials, The University of Sheffield, Sheffield, UK
- 10.20 *CL-3:L14* **Novel Basic Carbon Slidegate Refractory for Ca-treated Steel Application**
A. REZAIE, M. SNYDER, P. DESAI, M. ZIEMNICKI, R&D Dept., Vesuvius Research, Pittsburgh, PA, USA
- 10.40 *Break*

Session CL-4 - System Modeling, Simulation and Failure Analysis

Room: **TURCHESE**

Chair: S. HASHIMOTO, Japan

- 11.00 *CL-4:L06* **Sizing of a Refractory Castable Gas-burner Using Thermo-mechanical Simulations**
F. NAZARET¹, T. CUTARD², O. BARRAU¹, ¹AUROCK Pépinière Albia, Albi, France; ²Toulouse University, Mines Albi, Research Center on Tools Materials and Processes (ICA-CROMeP), Albi, France
- 11.20 *CL-4:L07* **Effect of Joint Condition and Friction Force on Thermal Stress Analysis of BOF**
Y. HINO, Slag and Refractories Dept., Steel Research Laboratory, JFE Steel Corporation, Chiba, Japan; Y. KIYOTA, Slag and Refractories Dept., Steel Research Laboratory, JFE Steel Corporation, Fukuyama, Japan; Y. HATTORI, JFE Sekkei Ltd., Kurashiki, Japan
- 11.40 *CL-4:L08* **Selection Criteria and Tools for Refractory Materials to be used in Pulverised Coal Combustion Reactors**
P. MICELI, A. DI DONATO, U. MARTINI, Centro Sviluppo Materiali SpA, Rome, Italy
- 12.00 *CL-4:L09* **Damage of High Zirconia Fused-cast Refractories During Cooling: an XRD and EBSD Study**
A. SIBIL, T. DOUILLARD, M. R'MILI, N. GODIN, G. FANTOZZI, Laboratoire MATEIS, INSA Lyon, Villeurbanne, France
- 12.20 *CL-4:L10* **Investigation of Refractory Corrosion of a Gas-stirred Steel Ladle by Simulation**
S. VOLLMANN, H. HARMUTH, University of Leoben, Leoben, Austria
- 12.40 *CL-4:L11* **Constitutive Equations for Creep of Cement Bonded Alumina-Magnesia Refractory Castables with Different Microsilica Contents**
A.G. TOMBA MARTINEZ, Materials Science and Technology Research Institute (INTEMA), Ceramics Division, Argentina; M.A.L. BRAULIO, V.C. PANDOLFELLI, Federal University of São Carlos, Materials Engineering Dept., Materials' Microstructural Engineering Group (GEMM), Brazil

Session CM-2 - Nanomaterials Characterization and Techniques

Room: **SMERALDO 2**

Chair: H. WOLF, Switzerland

- 9.00 *CM-2:IL06* **Effects of Surface Hydrogenation on Diamond-like Carbon Films by In-situ UPS**
D.H.C. CHUA, Dept. of Materials Science & Engineering, National University of Singapore, Singapore
- 9.30 *CM-2:L07* **MgO Nanocubes in Compressed Powders**
A.K. STERNIG, D. KOLLER, N. SIEDL, M. MÜLLER, J. BERNARDI, O. DIWALD, Inst. of Materials Chemistry, Vienna University of Technology, Austria; Inst. of Particle Technology, Friedrich-Alexander-University, Erlangen, Germany; K.P. MCKENNA, P.V. SUSHKO, A.L. SHLUGER, London Centre for Nanotechnology and Dept. of Physics & Astronomy, University College London, UK; WPI-Advanced Inst. for Materials Research, Tohoku University, Sendai, Japan
- 9.50 *CM-2:L08* **Scanning Auger Electron Spectroscopy: a New and Universal Technique for Identifying Graphene**
MINGSHENG XU, International Center for Young Scientists, NIMS, Tsukuba, Japan; D. FUJITA, Int. Center for Young Scientists, Advanced Nano Characterization Center, Int. Center for Materials Nanoarchitectonics, NIMS, Japan; N. HANAGATA, Nanotechnology Innovation Center, National Institute for Materials, Japan
- 10.10 *CM-2:L09* **Synthesis of Carbon Nanotubes/Gold Nanoparticles Hybrids for Environmental Applications**
L. MINATI¹, G. SPERANZA¹, S. TORRENTO^{1,2}, L. TONIUTTI², B. ROSSI², C. MIGLIARESI³, D. MANIGLIO³, A. CHIASERA⁴, M. FERRARI⁴, ¹FBK, Povo-Trento, Italy; ²Dept. Physics, University of Trento, Italy; ³Dept. Material Eng., University of Trento, Italy; ⁴CNR-IFN, CSMFO Lab., Povo-Trento, Italy
- 10.30 *Break*

Session CM-3 - Nanomanufacturing

Room: **SMERALDO 2**

Chair: K. ARIGA, Japan

- 11.00 *CM-3:IL02* **Opal-type Photonic Crystals: Fabrication and Application**
A. CHIAPPINI¹, G. ALOMBERT-GOGET¹, C. ARMELLINI^{1, 2}, S. BERNESCHI³, M. BRENCI³, I. CACCIARI³, C. DUVERGER-ARFUSO⁴, S. GUDDALA^{1, 5, 6}, M. FERRARI¹, E. MOSER^{1, 5}, D.N. RAO⁶, G.C. RIGHINI³, ¹CNR-IFN, CSMFO Lab., Povo, Trento, Italy; ²FBK, Povo, Trento, Italy; ³CNR-IFAC, Nello Carrara Inst. of Applied Physics, MDF-Lab, Sesto Fiorentino (FI), Italy; ⁴Lab. LdOF, UMR CNRS 6010, Université du Maine, Le Mans, France; ⁵Dip. Fisica, Università di Trento, Povo, Italy; ⁶School of Physics, University of Hyderabad, Hyderabad, India
- 11.30 *CM-3:IL03* **Self-assembly and Soft Lithography for Nanostructure Fabrication**
H. WOLF, C. KÜMIN, E. LÖRTSCHER, A. REY, IBM Research GmbH, Zurich Research Lab., Rüschlikon, Switzerland; C. HÜCKSTÄDT, N.D. SPENCER, Dept. of Materials, ETH Zürich, Zürich, Switzerland
- 12.00 *CM-3:IL04* **Iron Oxide Nanostructural Materials and Their Enhanced Sensing Performance**
D. WANG, IPE CAS, Beijing, China; R.B. YU, USTB, Beijing, China; X.Y. LAI, J. LI, Z.M. LI, IPE CAS, Beijing, China

Session CN-3 - Laminated Composite Structures

Room: **AMBRA**

Chair: J. LAMON, France

- 9.00 *CN-3:IL01* **Design and Preparation of Laminated Composites**
DONGLIANG JIANG, The State Key Lab of High Performance Ceramics and Superfine Microstructure Shanghai Institute of Ceramics, CAS, Shanghai, China
- 9.35 *CN-3:IL02* **Joining and Integration of Ultra High Temperature Ceramic Composites**
R. ASTHANA, Dept. of Engineering and Technology, University of Wisconsin-Stout, Menomonie, WI, USA; **M. SINGH**, Ohio Aerospace Institute, NASA Glenn Research Center, Cleveland, OH, USA
- 10.10 *CN-3:IL03* **Damage-tolerant Laminate-type Hybrid Ceramics**
Y. KAGAWA, Research Center for Advanced Science and Technology (RCAST), The University of Tokyo and National Institute for Materials Science (NIMS), Tokyo, Japan
- 10.45 *CN-3:L04* **Optomechanical Borosilicate Glass Matrix Composites**
BO PANG, **D. MCPHAIL**, **A.R. BOCCACCINI**, Dept. of Materials, Imperial College London, London, UK
- 11.10 *Break*

Session CN-2 - Processing and Fabrication

Room: **AMBRA**

Chair: Y. KAGAWA, Japan

- 11.40 *CN-2:L03* **Hierarchical SiC-based Ceramic Matrix Composites Reinforced with SiC Nanowires Grafted Carbon Fibers**
B. LU^{1,3}; **S.M. DONG**^{1,2}; **Z. WANG**^{1,2}; **X.Y. ZHANG**^{1,2}; **Y.S. DING**^{1,2},
¹Structural Ceramics and Composites Engineering Research Center, Shanghai Institute of Ceramics, CAS, Shanghai, P.R. China; ²State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, CAS, Shanghai, P.R. China; ³Graduate University of Chinese Academy of Sciences, Beijing, P.R. China
- 12.05 *CN-2:IL05* **Microstructures and Properties of Ultra-high-temperature Ceramics (UHTCs) based Composites with Carbon Fibers as Reinforcements**
SHAOMING DONG, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China

THURSDAY JUNE 10 MORNING

Session CA-3 - Shape Forming and Compaction Mechanisms

Room: AUDITORIUM

Chair: Y. HIRATA, Japan

- 8.45 *CA-3:IL01* **Printing Techniques for the Manufacture of Structures in the Micrometer Range**
A. ROOSEN, Institute of Glass and Ceramics, University of Erlangen-Nuremberg, Erlangen, Germany
- 9.15 *CA-3:IL02* **New Developments in the Electrophoretic Deposition (EPD) of Structured Compacts and Coatings**
R. CLASEN, Saarland University, Saarbrücken, Germany
- 9.45 *CA-3:L03* **Influence of Different Suspension Properties on Internal Structure and Deformation Behaviour of Spray Dried Ceramic Granules**
S. ECKHARD, M. FRIES, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Dresden, Germany
- 10.05 *CA-3:L04* **New Low-toxic Water-Soluble Monomers for Gelcasting of Ceramic Powders**
M. SZAFRAN, P. BEDNAREK, A. SZUDARSKA, T. MIZERSKI, Warsaw University of Technology, Faculty of Chemistry, Warsaw, Poland
- 10.25 *Break*

Session CA-4 - Sintering and Related Phenomena

Room: AUDITORIUM

Chair: V. TIKARE, USA

- 10.55 *CA-4:IL02* **Evidence of a Microwave Effect on the Sintering of Y-TZP Powder**
S. CHARMOND, C.P. CARRY, **D. BOUVARD**, Lab. SIMAP, Grenoble Institute of Technology / Université Joseph Fourier, Saint Martin d'Herès, France
- 11.25 *CA-4:IL03* **Sintering Kinetics of Powder Compact Containing Large Pores**
JINGZHE PAN, FAN LI, Dept. of Engineering, University of Leicester, Leicester, UK
- 11.55 *CA-4:IL04* **Microstructural Anisotropy during Constrained Sintering**
O. GUILLON, Technical University Darmstadt, Darmstadt, Germany
- 12.25 *CA-4:IL18* **Multi-physics Simulation of Sintering**
V. TIKARE, Sandia National Laboratories, Albuquerque, NM, USA
(rescheduled time as for Author request)

Session CB-4 - Spark Plasma Synthesis and Processing

Room: ORSA MAGGIORE

Chair: E. OLEVSKY, USA

- 8.30 *CB-4:L06 Spark Plasma Sintering of Iodine-bearing Apatite*
S. LE GALLET, F. BERNARD, Laboratoire ICB, Université de Bourgogne, Dijon, France; L. CAMPAYO, E. COURTOIS, F. BART, CEA, DEN, Marcoule, DTCD/SECM/LDMC, Bagnols-sur-Ceze, France; S. HOFFMANN, YU. GRIN, Max-Planck-Institut für Chemische Physik fester Stoffe, Dresden, Germany
- 8.50 *CB-4:L08 Effects of the SPS Parameters on the Reactive Sintering of a Cobalt Aluminate Powder*
A. PAVIA¹, C. ESTOURNES^{1,2}, A. WEIBEL¹, A. PEIGNEY¹, G. CHEVALLIER^{1,2}, CH. LAURENT¹, ¹Université de Toulouse, CIRIMAT, UMR CNRS-UPS-INP 5085, Université Paul-Sabatier, Toulouse cedex , France; ²PNF2 CNRS, MHT, Université Paul-Sabatier, Toulouse cedex , France
- 9.10 *CB-4:L09 Spark Plasma Sintering of AION Ceramics*
H.E. KANBUR, B. APAK, F.C. SAHIN, Istanbul Technical University, Istanbul, Turkey
- 9.30 *CB-4:L10 Spark Plasma Sintering of a Conductive Material, YZrTiO*
L. RAMOND, G. BERNARD-GRANGER, A. PRINCIVALLE, L. GUIZARD, LSFC- UMR 3080 CNRS, Saint-Gobain CREE, Cavailon, France
- 9.50 *CB-4:L11 Production and Characterisation of Boron Carbide - Titanium Diboride Ceramics by the Spark Plasma Sintering Method*
B. UYGUN, G. GOLLER, O. YUCEL, F. SAHIN, Istanbul Technical University, Metallurgical and Matls Eng. Dept, Istanbul, Turkey

THURSDAY JUNE 10 MORNING

Room: LE PLEIADI

Chair: J.H. SANDHAGE, USA

Session CB-7 - Hybrid Materials

- 8.30 *CB-7:IL04* **Mesoporous Silica Nanoparticles for Cell Specific Targeting and Drug Delivery**
M. LINDÉN, J. ROSENHOLM, Dept. of Physical Chemistry, Abo Akademi University, Turku, Finland; C. SAHLGREN, Dept. of Biology, Abo AKademi University, Turku, Finland
- 9.00 *CB-7:IL05* **Panoscopic Assembling of Ceramic Materials for High Performance UV-ray Shielding Application**
T. SATO, X. LIU, S. YIN, IMRAM, Tohoku University, Sendai, Japan
- 9.30 *CB-7:IL06* **Energy Generation and Storage Applications of TiO₂ Nanotubular Arrays by Atomic Layer Deposition and Nanotemplating**
HYUNJUNG SHIN, School of Advanced Materials Engineering, Kookmin University, Seoul, Korea

Session CB-8 - Porous Ceramics

- 10.00 *CB-8:IL03* **Hybrid Foams, Colloids and Beyond: Integrative Chemistry**
R. BACKOV, CRPP-UPR CNRS 8641, Pessac, France
(*rescheduled time as for Author request*)
- 10.30 *Break*

THURSDAY JUNE 10 MORNING

Session CB-6 - Bio-inspired and Bio-enabled Processing

Room: LE PLEIADI

Chair: J.J. SCHNEIDER, Germany

- 10.50 **CB-6:IL01 Formation of Hierarchically Structured Crystals through Bio-inspired Processing**
H. IMAI, Faculty of Science and Technology, Keio University, Yokohama, Japan
- 11.20 **CB-6:IL02 Integration of Bio-Enabled and Synthetic Syntheses of Functional 3-D Nanostructured Assemblies**
K.H. SANDHAGE^{1,2}, S.C. DAVIS¹, J.P. VERNON¹, A.S. GORDON¹, J.D. BERRIGAN¹, S. SHIAN^{1,2}, Y. FANG¹, Y. CAI¹, M.B. DICKERSON^{1,3}, R.R. NAIK³, S.R. MARDER^{2,1}, N. KROGER^{2,1}, ¹School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, GA, USA; ²School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, USA; ³Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright Patterson Air Force Base, OH, USA
- 11.50 **CB-6:IL03 Bio-inspired Synthesis of Oxide-based Ceramics**
J. BILL, Inst. for Materials Science, University of Stuttgart, Stuttgart, Germany
- 12.20 **CB-6:IL04 Nano-structured Ceramic Films by Aerosol Deposition**
DONG-SOO PARK, BYUNG-DONG HAHN, WOON-HA YOON, JUNGHO RYU, JONG-JIN CHOI, BYOUNG-KOOK LEE, JUNHWAN CHOI, Functional Materials Division, Korea Institute of Materials Science, Changwon, South Korea
- 12.50 **CB-6:L05 Effect of the Hydrothermal Heat Treatment Conditions of Titanium on the Coating of Bio-mimetically Grown "Bone-Like" Apatite Layer**
D. TEKER, C. POYRAZ SAG, M. DİNÇER, S. ALKOY, K. ÖZTÜRK, Gebze Institute of Technology, Material Science and Engineering, Kocaeli, Turkey

THURSDAY JUNE 10 MORNING

Session CB-12.3 - Modeling of Materials and Processes

Room: ORSA MINORE

Chair: M.P. DARIEL, Israel

- 9.00 *CB-12.3:IL01* **Processing of Ceramic Coatings and Multilayered Ceramics**
R. BORDIA, University of Washington, Seattle, WA, USA; **O. GUILLON**, Technische Universität Darmstadt, Darmstadt, Germany; **C. MARTIN**, CNRS/ Grenoble-INP, Laboratoire SIMAP, Saint Martin d'Herès cedex, France
- 9.30 *CB-12.3:IL03* **Dual Scale Failure Modeling of Composite Structures for a Fusion Reactor**
JEONG-HA YOU, Max-Planck-Institute of Plasma Physics, Garching, Germany
- 10.00 *CB-12.3:L04* **Magnetolectric Characterization of Compositionally Graded Magnetostrictive-piezoelectric Layered Structures**
V. PETROV, Novgorod State University, Veliky Novgorod, Russia; **G. SRINIVASAN**, S.K. MANDAL, Oakland University, Rochester, MI, USA
- 10.20 *CB-12.3:L05* **Computation of Mixed-mode Stress Intensity Factors**
A. SHAGHAGHI MOGHADDAM, R. GHAJAR, Mechanical Eng. Dept., University of KNTU, Tehran, Iran; **M. ALFANO**, Mechanical Eng. Dept., University of Calabria, Rende (CS), Italy
- 10.40 *Break*

Session CB-11.3 - SHS of Ceramic Powders

Room: ORSA MINORE

Chair: P. BORDIA, USA

- 11.10 *CB-11.3:IL05* **Regulation of Crystallites Size in Ceramic SHS**
S.L. KHARATYAN, Institute of Chemical Physics NAS RA, Yerevan, Armenia and Yerevan State University, Yerevan, Armenia
- 11.40 *CB-11.3:L06* **Production of Zirconium Diboride Powder by Self Propagating High Temperature Synthesis**
B. AKKAS, M. ALKAN, O. YUCEL, Metallurgical & Matls Eng. Dept., Istanbul Technical University, Istanbul, Turkey
- 12.00 *CB-11.3:L07* **Combustion Synthesis of Tungsten Containing Ceramic Materials**
Kh.V. MANUKYAN^{1,2}, S.L. KHARATYAN^{1,2}, R.A. MNATSAKANYAN², A. ZURNACHYAN², A. VOSKANYAN¹, V. DANGHYAN¹, ¹Yerevan State University, Yerevan, Armenia; ²A.B. Nalbandyan Institute of Chemical Physics NAS, Yerevan, Armenia
- 12.20 *CB-11.3:L09* **Catalyst-induced Vapor-solid Growth Route for Synthesis of B₄C Nanostructures: Nanobelts, Platelets and Whiskers**
S. ILDAY, Graduate Program of Materials Science and Nanotechnology, Bilkent University, Ankara, Turkey; **E. BENGU**, Dept. of Chemistry, Bilkent University, Ankara, Turkey

**Session CD-4 - Residual Stresses, Joint Modeling
Design, Characterization and Analysis**

Room: ZENITH

Chair: N. EUSTATHOPOULOS, France

- 8.30 *CD-4:IL01* **Mechanical Properties and Residual Stress in Hermetic Feedthroughs for Medical Devices**
M.W. REITERER, Medtronic Strategy and Innovation, Medtronic, Inc., Minneapolis, MN, USA; **B. TISCHENDORF**, **W.J. TAYLOR**, **A.J. THOM**, Medtronic Energy and Component Center, Medtronic, Inc., Brooklyn Center, MN, USA
- 9.00 *CD-4:IL02* **Measured Residual Stress/Strain Distributions in a Micro-Area around a Ceramic/Metal Interfaces**
S.-I. TANAKA, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan
- 9.30 *CD-4:IL03* **Recent Advances in Joining of SiC Based Materials**
M. SALVO, **V. CASALEGNO**, **M. FERRARIS**, **S.HAN**, **S. RIZZO**, **A. VENTRELLA**, Politecnico di Torino, Dipartimento di Scienza dei Materiali e Ingegneria Chimica-DISMIC, Torino, Italy
- 10.00 *CD-4:IL04* **Residual Stress Measurement around the Interface of Copper Bi-crystal Developed by Uniaxial Extension**
T. HANABUSA¹, **A. SHIRO**², **T. OKADA**¹, ¹Institute of Technology and Science, The University of Tokushima, Tokushima, Japan; ²Graduate School of Advanced Technology and Science, The University of Tokushima, Tokushima, Japan
- 10.30 *Break*

Chair: C. LEINENBACH, Switzerland

- 10.50 *CD-4:IL05* **Preparation, Characterization and Applications of Glass-ceramic-to-metal Seals**
I.W. DONALD, **B.L. METCALFE**, **L.A. GERRARD**, **P.M. MALLINSON**, **J.A. FERNIE**, Materials Science Research Div., AWE, Aldermaston, Berkshire, UK
- 11.20 *CD-4:IL06* **The Quality of Brazed Ceramic and Cemented Carbide Joints - A Mechanical and Metallurgical Assessment**
W. TILLMANN, **L. WOJARSKI**, Institute of Materials Engineering, TU Dortmund, Dortmund, Germany
- 11.50 *CD-4:IL07* **Design and Characterization of Metal-ceramic Joints for High Temperature Applications**
N. SOBCZAK¹, **R. ASTHANA**², **M. SINGH**³, ¹Centre for High Temperature Studies, Foundry Research Institute, Cracow, Poland; ²Dept. of Engineering & Technology, University of Wisconsin-Stout, Menomonie, WI, USA; ³Ohio Aerospace Institute, NASA Glenn Research Center, Cleveland, OH, USA
- 12.20 *CD-4:IL08* **Modelling and Computer Simulation of Residual Stresses at Joined Interfaces**
S. SCHMAUDER, Institute for Materials Testing, Materials Science and Strength of Materials (IMWF), University of Stuttgart, Germany
- 12.50 *CD-4:L09* **Temperature Modeling for Friction Welding Process Between Ceramic and Metal**
HAZMAN SELI, **A. IZANI** Md. **ISMAIL**, **E. RACHMAN**, **Z. ARIFIN AHMAD**, Universiti Sains Malaysia (USM), School of Matls Eng, Penang, Malaysia

THURSDAY JUNE 10 MORNING

Session CE-2 - Nitride, Carbide and Boride Ceramics

Room: **VENERE**

Chair: M.J. HOFFMANN, Germany

- 9.00 *CE-2:IL13* **Microstructural Design of Si₃N₄ Ceramics via Preceramic Polymer Additives**
G. MOTZ, University of Bayreuth, Bayreuth, Germany
- 9.30 *CE-2:IL14* **Robust Net Shape Forming of High Temperature Silicon Nitride Based Gas Turbine Components**
V.K. PUJARI, A. VARTABEDIAN, G. WAYMAN, Saint-Gobain Ceramics & Plastics Inc., Northboro, MA, USA
- 10.00 *CE-2:L15* **SiC Nanostructured Ceramics from Laser Grown Nano-powders Sintered by SPS**
Y. LECONTE, X. LANDREAU, S. COSTE-LECONTE, N. HERLIN-BOIME, CEA, IRAMIS, SPAM, LFP, Gif sur Yvette, France; G. BONNEFONT, G. FANTOZZI, MATEIS, UMR CNRS 5510, Université de Lyon, INSA de Lyon, Villeurbanne, France
- 10.20 *Break*

Session CE-4 - Ternary Compounds

Room: **VENERE**

Chair: V.K. PUJARI, USA

- 10.50 *CE-4:IL01* **The Max Phases: Ductile, Machinable Ternary Carbides and Nitrides for High Temperature and Other Applications**
M.W. BARSOUM, Dept. of Materials Science and Engineering, Drexel University, Philadelphia, PA, USA
- 11.20 *CE-4:IL02* **Low Cost Processing and Property Control of Layered Ternary Carbides and Nitrides (MAX Phases)**
YANCHUN ZHOU, High-performance Ceramic Division, Shenyang National Lab. for Materials Science, Institute of Metal Research, CAS, Shenyang, China
- 11.50 *CE-4:L03* **Thermal Stability of Ti₃Al_{1-x}Si_xC₂ Solid Solutions**
JIXIN CHEN, Y.C. ZHOU, J. ZHANG, SYNLAB, Institute of Metal Research, CAS, Shenyang, China
- 12.10 *CE-4:L05* **Pressureless Sintering and Properties of Ti₃AlC₂**
X.P. LU, Y.C. ZHOU, High-performance Ceramic Division, Shenyang National Lab. for Materials Science, Institute of Metal Research, CAS, Shenyang, China
- 12.30 *CE-4:L04* **Thermal Stability of MAX Phases in Vacuum**
W.K. PANG, I.M. LOW, Dept. of Applied Physics, Curtin University of Technology, Perth, WA, Australia

THURSDAY JUNE 10 MORNING

Sub-session CF-3.1 - Ceramic Catalysts

Room: ALBA 2

Chair: I. YAMANAKA, Japan

- 8.30 *CF-3.1:IL01* **Aerogel Catalysts**
A.C. PIERRE, Université Lyon 1, CNRS, UMR 5256, IRCELYON, Villeurbanne, France
- 9.00 *CF-3.1:IL02* **Highly Efficient Visible Light Photocatalysts on the basis of Interfacial Charge Transfer and Multi-electron Oxygen Reduction Catalyst**
K. HASHIMOTO, University of Tokyo, Tokyo, Japan; H. IRIE, University of Yamanashi, Yamanashi, Japan
- 9.30 *CF-3.1:IL03* **Catalysts Supports for Energy Conversion Processes**
J.L.G. FIERRO, Inst. de Catalisis y Petroleoquimica, CSIC, Madrid, Spain
- 10.00 *CF-3.1:L04* **Effects of Surface CeO₂ Particle Size on Diesel Particulate Oxidation of Pr₆O₁₁ Based Oxide**
T. ISHIHARA, S. HAMAMOTO, Dept. of Applied Chemistry, Faculty of Engineering, Kyushu University, Fukuoka, Japan
- 10.20 *CF-3.1:L05* **Ultra-divided Catalysts Tailored for Industrial Steam Reforming Processes**
C. BONHOMME, R. FAURE, S. GOUDALLE, F. ROSSIGNOL, T. CHARTIER, CNRS-ENSCI, Lab. de Sciences des Procédés Céramiques et de Traitements de Surface (SPCTS), UMR CNRS 6638, Limoges, France; C. BERTAIL, P. DEL-GALLO, Air Liquide, CRCD Research Center, Jouy-en-Josas, France
- 10.40 *Break*

Sub-session CF-4.3 - Materials for Electrochemistry

Room: ALBA 2

Chair: MEILIN LIU, USA

- 11.10 *CF-4.3:IL01* **Semiconducting Oxide Electrodes for Photoelectrochemical Water Splitting**
A. ROTHCHILD, Dept. of Materials Engineering, Technion - Israel Institute of Technology, Haifa, Israel
- 11.40 *CF-4.3:IL02* **Photocatalytic Activity of Ceramic Foam Supported TiO₂, TiO₂/Ce and TiO₂/Zr Thick Films**
G. PLESCH, M. VARGOVÁ, K. JESENÁK, Faculty of Natural Sciences, Comenius University, Bratislava, Slovak Rep.; U.F. VOGT, M. GORBÁR, Empa, Swiss Federal Labs for Materials Testing and Research, Dübendorf, Switzerland; T. MANCINO, P. COLOMBO, Università di Padova, Padova, Italy
- 12.10 *CF-4.3:L03* **Analysis of Degradation and Aging Processes in Solid Oxide Electrolyser Cells**
U.F. VOGT, D. WIEDENMANN, L. HOLZER, A. ZÜTTEL, Empa Materials Science and Technology, Dübendorf, Switzerland; A. HAUCH, National Lab. for Sustainable Energy, Risoe, Tech. University of Denmark, Roskilde, Denmark
- 12.30 *CF-4.3:L05* **Development of Porous ZrO₂ Diaphragms for Alkaline Electrolysis**
M. GORBÁR, U. VOGT, V. HERZOG, D. WIEDENMANN, A. ZÜTTEL, Empa Abt. 138 "Hydrogen & Energy", Dübendorf, Switzerland

THURSDAY JUNE 10 MORNING

Session CG-3 - Thermal Barrier Coatings

Room: URANO

Chair: P. GOUDEAU, France

- 9.00 *CG-3:IL01* **Advanced Thermal Barrier Coatings**
R. VABEN, O. JARLIGO, D. MACK, T. STEINKE, D. STÖVER, Institute of Energy Research (IEF-1), Forschungszentrum Jülich GmbH, Jülich, Germany
- 9.30 *CG-3:IL02* **Technical and Economical Aspects of Current Thermal Barrier Coating Systems for Gas Turbine Engines**
A. BOLCAVAGE, Rolls Royce Corporation, Indianapolis, IN, USA
- 10.00 *CG-3:IL03* **Thermal Barrier Coatings as an Interacting Multilayer System: Performances and Degradation Mechanisms**
O. LAVIGNE, ONERA-DMSM, Chatillon, France
- 10.30 *CG-3:L04* **Thermal Conductivity and Sintering Resistance of Plasma Sprayed Dysprosia-Yttria-Zirconia Thermal Barrier Coatings**
S. WANG, **T. TROCZYNSKI**, Dept. of Materials Engineering, The University of British Columbia, Vancouver, BC, Canada; R. REED, Dept. of Metallurgy and Materials, The University of Birmingham Edgbaston, Birmingham, UK
- 10.50 *Break*

Session CG-4 - Thin Films and Coatings for Tribological and Multifunctional Applications

Room: URANO

Chair: S. KURODA, Japan

- 11.20 *CG-4:IL06* **Nanocomposite Metal Carbide/Amorphous Carbon Coatings for Tribological Applications**
J.C. SANCHEZ-LOPEZ, M.D. ABAD, D. MARTINEZ-MARTINEZ, A. FERNANDEZ, Instituto de Ciencia de Materiales de Sevilla (CSIC-Univ. Sevilla), Sevilla, Spain
- 11.50 *CG-4:IL07* **Hard Protective Thin Films: Mechanical and Tribological Behavior**
M. FENKER, H. KAPPL, FEM Research Institute Precious Metals & Metals Chemistry, Schwäbisch Gmünd, Germany
- 12.20 *CG-4:L09* **Boron Nitride Coatings Deposited onto Titanium. Use of an Alternative Ceramization Process**
B. TOURY, H. TERMOSS, A. BRIOUDE, S. BERNARD, P. MIELE, Lab. des Multimateriaux et Interfaces, UMR 5615 CNRS - Université Lyon 1, France; S. BENAYOUN, Lab. de Tribologie et Dynamique des Surfaces, UMR 5513 CNRS - Ecole Centrale de Lyon, Ecully, France

Session CH-3 - Magnetic Ceramics

Room: SIRIO

Chair: L. MORELLON, France

- 8.45 *CH-3:IL10* **Novel Materials for all Oxide-based Spintronics**
L. ALFF, Institute for Materials Science, TU Darmstadt, Darmstadt, Germany
- 9.15 *CH-3:IL11* **Magnetic Nanoparticles for Applications in Medicine and Technique**
P. GOERNERT, P. PAYER, M. ROEDER, Innovent, Jena, Germany; R. MUELLER, R. HERGT, IPHT, Jena, Germany; H. SPEPANKOVA, P. KRISTAN, V. CHLAN, Charles University, Prague, Czech Republic
- 9.45 *CH-3:IL12* **Application of Permanent Magnets for Microwave Absorbers in GHz Range**
S. SUGIMOTO, Dept. of Material Science, Tohoku University, Sendai, Japan
- 10.15 *Break*

Session CH-5 - Optical, Electro-optical and Magneto-optical Ceramics and Devices

Room: SIRIO

Chair: Jan MA, Singapore

- 10.45 *CH-5:IL01* **Bi-doped Glass Optical Fibers: Properties and Applications**
E. DIANOV, Fiber Optics Research Center, Moscow, Russia
- 11.15 *CH-5:IL03* **Abnormal Effects of Sonic Metamaterials**
YAN-FENG CHEN, National Lab. of Solid-State Microstructures & Dept. of Materials Science and Eng., Nanjing University, Nanjing, China
- 11.45 *CH-5:L04* **Design, Characterization and Fabrication of Nd³⁺ Doping Profiles in Transparent YAG Laser Ceramics**
R. GAUME, J.A. WISDOM, R.L. BYER, Stanford University, Stanford, CA, USA
- 12.05 *CH-5:L06* **Thermal Stability of Ge-Sb-Te Materials for Phase - Change Memory Devices**
A.A. SHERCHENKOV, Moscow Institute of Electronic Technology, Russia; S.A. KOZYUKHIN, Kurnakov Institute of General and Inorganic Chemistry, Moscow, Russia
- 12.25 *CH-5:IL02* **Ultra-compact Gbps PLZT Electro-optic Modulators on Si Substrate**
M. NAKADA^{1,2}, T. SHIMIZU¹, H. MIYAZAKI¹, K. OHASHI¹, ¹MIRAI-Selete, Tsukuba, Ibaraki, Japan; ²NEC Corporation, Tsukuba, Ibaraki, Japan; H. TSUDA, J. AKEDO, AIST, Tsukuba, Ibaraki, Japan

Session CH-6.5 - Structural Characterization and Spin Order of Multiferroics

Room: ORSA MAGGIORE

Chair: D. DREW, USA

- 11.00 *CH-6.5:IL01* **Magnetically-induced Electric Polarization in a Collinear Oxide Antiferromagnet and in an Organo-metallic Quantum Magnet**
M. KENZELMANN, Paul Scherrer Institute, Villigen-PSI, Switzerland
- 11.30 *CH-6.5:IL02* **Structure, Electrical and Magnetic Properties of Hexagonal ReMnO₃ Heterostructures**
C. DUBOURDIEU, I. GELARD, H. ROUSSEL, LMGP, CNRS, Grenoble INP, Grenoble, France; S. PAILHES, LLB, CNRS-CEA, CEA Saclay, Gif-sur-Yvette, France; N. JENATHAN, O. LEBEDEV, S. VAN TENDELOO, EMAT, University of Antwerp, Antwerpen, Belgium
- 12.00 *CH-6.5:IL03* **Magnetoelectronic Coupling in Frustrated Spin Systems**
T.T.M. PALSTRA, Zernike Institute for Advanced Materials, University of Groningen, Groningen, The Netherlands
- 12.30 *CH-6.5:L04* **Evidence for a Monoclinic alpha - Monoclinic beta First- Order Transition in BiFeO₃ Thin Films**
H. TOUPET, F. LE MARREC, M.G. KARKUT, LPMC, Université de Picardie Jules Verne, Amiens, France; C. LICHTENSTEIGER, DPMC, Université de Genève, Genève, Switzerland; B. DKHIL, SPMS, Ecole Centrale Paris, Châtenay-Malabry, France

THURSDAY JUNE 10 MORNING

Session CI-7 - Spectroscopy of Magnetic Oxides

Room: GIOVE

Chair: T. GIAMARCHI, Switzerland

- 8.30 *CI-7:IL01* **Modeling Highly Resolved Spectroscopies of Complex Materials: From Qualitative to Quantitative**
A. BANSIL, Physics Dept., Northeastern University, Boston, MA, USA
- 9.00 *CI-7:IL02* **New Electronic States in the Magnetic Materials Revealed by ARPES**
CHANGYOUNG KIM, Dept. of Physics, Yonsei University, Seoul, Korea
- 9.30 *CI-7:IL03* **RE L₃ X-ray Absorption Study of REO_(1-x)F_xFeAs (RE = La, Pr, Nd, Sm) Oxypnictides**
B. JOSEPH¹, **A. IADECOLA**¹, **M. FRATINI**², **A. BIANCONI**¹, **A. MARCELLI**³, **N.L. SAINI**¹, ¹Dip. Fisica, University of Rome "La Sapienza", Roma, Italy; ²Istituto di Fotonica e Nanotecnologie, CNR Roma, Italy; ³Laboratori Nazionali di Frascati, INFN, Frascati, Italy
- 9.50 *CI-7:IL04* **Photoemission Spectroscopy of Perovskite-type Oxides under Epitaxial Strain**
A. FUJIMORI, Dept. of Physics, University of Tokyo, Tokyo, Japan
- 10.20 *Break*
- 10.35 *CI-7:IL05* **Manipulation Electronic Structure by Laser Pump-photoemission Probe in Oxides**
T. MIZOKAWA, Dept. of Complexity Science and Engineering, University of Tokyo, Tokyo, Japan

Session CI-8 - Quantum Phase Transitions and Magnetism in Oxides

- 11.05 *CI-8:IL02* **Intrinsic Lattice Instabilities in Magnetic Oxides Close to the Metal-insulator**
F. RIVADULLA, Physical Chemistry Dept., University of Santiago do Compostela, Santiago do Compostela, Spain
- 11.35 *Break*

Session CI-5 - Novel Synthesis and Processing Techniques

Room: GIOVE

Chair: Y. MATSUMOTO, Japan

- 11.50 *CI-5:IL04* **Dps Protein as a Bio-reactor to Synthesise Magnetic Nanoparticles**
C. SANGREGORIO, L. CASTELLI, L. SORACE, C. INNOCENTI, D. GATTESCHI, INSTM and Dept. of Chemistry, Univ. di Firenze, Sesto Fiorentino, Italy; P. CECI, E. CHIANCONE, C.N.R. Inst. of Molecular Biology and Pathology, Dept. of Biochemical Sciences, "Sapienza" Univ. of Rome, Rome, Italy
- 12.20 *CI-5:IL05* **Bulk Synthesis and Crystal Growth of Magnetic and Superconducting Functional Materials**
T. ITO, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan

THURSDAY JUNE 10 MORNING

Session CJ-2 - Innovation in the Silicate Ceramics Industry

Room: **SMERALDO 1**

Chair: P. BLANCHART, France

- 9.00 *CJ-2:IL09* **Fracture Propagation in Porcelain Tiles During Cooling**
V. CANTAVELLA, E. SANCHEZ, E. BANNIER, F. GILABERT, Instituto de Tecnologia Ceramica (ITC), AICE, Universitat Jaume I, Castellon, Spain
- 9.30 *CJ-2:IL10* **Glassceramics from Vitreous and Ceramic Wastes**
J.Ma. RINCON, IETcc, CSIC, Madrid, Spain
- 10.00 *CJ-2:L11* **Comparison of Weibull Modulus of Aluminosilicate Ceramics Sintered at Various Temperatures**
D.A. PAPARGYRIS, A.D. PAPARGYRIS, General Dept. of Applied Sciences, Lab. of Materials Testing, Technological & Educational Institute of Larissa, Larissa, Greece
- 10.20 *Break*

Session CJ-3 - Nanotechnology and Advanced Solutions in Silicate Ceramics

Room: **SMERALDO 1**

Chair: G. BALDI, Italy

- 10.50 *CJ-3:IL01* **Development of New VOC Removal Composite Catalyst Using Silicate Honeycomb Substrate**
M. OZAWA, Ceramic Research Laboratory, Nagoya Institute of Technology, Tajimi, Gifu, Japan
- 11.20 *CJ-3:IL02* **Testing of Photocatalytic Activity of Self-cleaning Surfaces**
U. CERNIGO, M. KETE, U. LAVRENCIC STANGAR, Lab. for Environmental Research, University of Nova Gorica, Nova Gorica, Slovenia
- 11.50 *CJ-3:L03* **High Temperature Structural Stabilisation of Turkish Sepiolites**
I. KARA, A. OZCAN, Anadolu University, Eskisehir, Turkey; S. AKAR, Eskisehir Osmangazi University, Eskisehir, Turkey
- 12.10 *CJ-3:L04* **Microwave-assisted Green Synthesis of Noble Metal Nanoparticles**
M. BLOSI, M. DONDI, ISTECCNR Institute of Science and Technology for Ceramics, National Research Council, Faenza, Italy; S. ALBONETTI, F. GATTI, Dept. of Industrial Chemistry and Materials, University of Bologna, Bologna, Italy; G. BALDI, CERICOL Colorobbia Research Centre, Sovigliana Vinci, Italy

Session CK-2 - Characterization

Room: **SMERALDO 3**

Chair: S. ROSSIGNOL, France

- 8.45 **CK-2:IL01 The Application of Micromechanics on Alkali-activated Materials**
F. SKVARA, Institute of Chemical Technology Prague, Prague; **V. SMILAUER**, J. NEMECEK, L. KOPECKY, Czech Technical University in Prague, Dept. of Mechanics, Prague, Czech Republic
- 8.15 **CK-2:IL02 The Alkali-activation of Aluminosilicates - Some Chemical Perspectives**
D.E. MACPHEE, **I. GARCIA LODEIRO**, Dept. of Chemistry, University of Aberdeen, Old Aberdeen, Scotland
- 9.45 **CK-2:L03 Mechanical Properties of Metakaolin Geopolymers: A Microstructural Study**
E. KAMSEU, **C. LEONELLI**, DIMA, Università di Modena e Reggio Emilia, Modena, Italy; A. TUCCI, L. ESPOSITO, Centro Ceramico Bologna, Bologna, Italy
- 10.05 **CK-2:L04 High-temperature Mechanical Property of Cf/geopolymer Composites After Heat Treatment and Repeated Impregnation by Sol-SiO₂**
DECHANG JIA, PEIGANG HE, TIESONG LIN, MEIRONG WANG, Harbin Institute of Technology, Harbin, P.R. China
- 10.25 **CK-2:L05 Evaluation of the Stability of Waste-based Geopolymeric Artificial Aggregates for Wastewater Treatment Processes Under Different Curing Conditions**
I. SILVA, Castelo Branco Polytechnic Institute and Centre of Materials and Building Technologies, University of Beira Interior, Covilhã, Portugal; J. CASTRO-GOMES, A. ALBUQUERQUE, Centre of Materials and Building Technologies, University of Beira Interior, Covilhã, Portugal
- 10.45 *Break*

Chair: K. IKEDA, Japan

- 11.15 **CK-2:IL06 Atomic Structure and Microstructure of Geopolymer and Crystallized Geopolymer Ceramics**
W.M. KRIVEN, J.L. BELL, P.E. DRIEMEYER, P. SARIN, R.P. HAGGERTY, N. XIE, University of Illinois at Urbana-Champaign, Dept. of Materials Science and Engineering, Urbana, IL, USA
- 11.45 **CK-2:IL07 In Situ Characterization of Fresh and Aged Geopolymer Materials**
S. ROSSIGNOL, GEMH ENSCI, Limoges, France
- 12.15 **CK-2:L09 Comparative Study of the Consolidation Process and Properties of Clay Based Geomaterials and "Geomimetic" Lateritic Clay Based Materials**
G.L. LECOMTE, G. LECOMTE, Groupe d'Etude des Matériaux Hétérogènes- ENSCI, Limoges, France; A. WATTIAUX, Institut de Chimie de la Matière Condensée de Bordeaux, Pessac, France

THURSDAY JUNE 10 MORNING

Session CL-4 - System Modeling, Simulation and Failure Analysis

Room: **TURCHESE**

Chair: R.C. BRADT, USA

- 8.30 *CL-4:IL01 Thermal Shock Criteria of Refractory Ceramics: Limitations of Conventional Analyses and Some Numerical Approaches to Improve the Prediction of the Resistance to Thermal Shock*
N. SCHMITT, LMT Cachan (ENS de Cachan, CNRS, UPMC), Cachan, France, also at IUFM de Créteil (UPEC), Saint Denis, France
- 9.00 *CL-4:IL02 A New Generation of Refractories to Enable Gasifier Fuel Flexibility*
J.P. BENNETT, KYEI-SING KWONG, H. THOMAS, R. KRABBE, J. NAKANO, National Energy Technology Laboratory, Albany, OR, USA
- 9.30 *CL-4:IL03 Modelling of Joint Effect in Refractory Structures*
E. BLOND¹, A. GASSER¹, M. LANDREAU², T.M.H. NGUYEN¹, ¹Institut PRISME, Polytech' Orléans, Orléans, France; ²CPM, Parc d'Activités Forbach Ouest, Forbach, France
- 10.00 *CL-4:L04 Nozzle Wear Mechanisms Developed by Contact with Slag and Steel During Casting Process*
V. PEIRANI, L. SANTINI, E. BENAVIDEZ, **E. BRANDALEZE**, Dpto de Metalurgia, Facultad Regional San Nicolás, Universidad Tecnológica Nacional, San Nicolás, Argentina
- 10.20 *CL-4:L05 Simulation of Moulding of Refractory Bricks*
D. GRUBER, H. HARMUTH, Chair of Ceramics, University of Leoben, Leoben, Austria
- 10.40 *Break*

Session CL-2 - Testing

Room: **TURCHESE**

Chair: C. BAUDIN, Spain

- 11.10 *CL-2:IL09 The Fracture Toughness of Refractories*
R.C. BRADT, The University of Alabama, Tuscaloosa, AL, USA
- 11.40 *CL-2:IL10 Thermomechanical Characterisation of Monolithic Castables*
T. CUTARD, N. DONVAL, A. MAZZONI, C. MICHEL, Toulouse University, Mines Albi, Research Center on Tools Materials and Processes (ICA-CROMeP), Albi, France; F. NAZARET AUROCK, MDI, ZA Albitech, Albi, France
- 12.10 *CL-2:L11 Electrical Characterization of Alumina-Based Bodies Containing Al-Rich Anodizing Sludge*
M.J. RIBEIRO, UIDM, ESTG, Polytechnique Institute of Viana do Castelo, Viana do Castelo, Portugal; J.A. LABRINCHA, Ceramics and Glass Engineering Dept., CICECO, University of Aveiro, Aveiro, Portugal
- 12.30 *CL-2:L12 High Temperature Mechanical Behaviour of MgO-CaZrO₃-based Refractories for Cement Kilns*
C. BAUDÍN, P. PENA, Instituto de Cerámica y Vidrio, CSIC, Madrid, Spain; A. OBREGÓN, J.L. RODRÍGUEZ-GALICIA, CINVESTAV, Unidad Saltillo, Coahuila, Saltillo, Mexico

THURSDAY JUNE 10 MORNING

Session CM-3 - Nanomanufacturing

Room: **SMERALDO 2**

Chair: A. CHIAPPINI, Italy

- 8.30 *CM-3:IL05* **SPM-based Nanofabrication and Analysis of Atomic-scale Magnetic Systems**
R. WIESENDANGER, Interdisciplinary Nanoscience Center Hamburg, University of Hamburg, Hamburg, Germany
- 9.00 *CM-3:IL06* **Supramolecular Approaches for Novel Functional Hybrid Materials**
K. ARIGA, World Premier International (WPI) Research Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan
- 9.30 *CM-3:IL07* **Luminescent Nanoparticles as Efficient Labels in DNA-Microarray**
F. ENRICHI, R. RICCO', A. MENEGHELLO, CIVEN and Nanofab, Marghera (Venezia), Italy
- 10.00 *CM-3:IL08* **Design of Size and Interconnection of Novel Complex Oxide Powder**
S. WADA, University of Yamanashi, Kofu, Japan
- 10.30 *Break*

Session CM-4 - Theory, Modeling and Simulation

Room: **SMERALDO 2**

Chair: G. SEIFERT, Germany

- 11.00 *CM-4:IL01* **Simulation of Complex Photonic Materials**
A. QUANDT, A. LEYMANN, Institut für Physik, Universität Greifswald, Greifswald, Germany
- 11.30 *CM-4:IL02* **Finite Bias Effects on the STM Images and STS Spectra of C60 Weakly Coupled to Au(111)**
M. COBIAN, **F.D. NOVAES**, A. GARCIA, ICMA-B-CSIC, Bellaterra, Spain; H. UEBA, Dept. of Electronics, Toyama University, Gofuku, Toyama, Japan; P. ORDEJON, N. LORENTE, CIN2, Bellaterra, Spain
- 12.00 *CM-4:IL03* **Multiscale Simulation of Nanostructured Photovoltaic Cells**
ZHIGANG SHUAI, Dept. of Chemistry, Tsinghua University, Beijing, China
- 12.30 *CM-4:IL04* **Lithography Simulation: Modeling and Applications**
P. EVANSCHITZKY, A. ERDMANN, Fraunhofer IISB, Erlangen, Germany

THURSDAY JUNE 10 MORNING

Session CN-4 - Property, Modeling and Characterization

Room: **AMBRA**

Chair: G.L. VIGNOLES, France

- 9.00 **CN-4:IL01 Interfaces and Interphases in Ceramic Matrix Composites: Influence on Mechanical Properties and Lifetime at High Temperature**
J. LAMON, CNRS/Université de Bordeaux, Laboratoire des Composites Thermostructuraux, Pessac, France
- 9.35 **CN-4:IL02 Modeling Tools for CMC Materials**
D. KOCH, Advanced Ceramics Group, University of Bremen, Bremen, Germany
- 10.10 **CN-4:L04 Investigation of Thermal Properties of 3D- C/SiC Composites**
PING HE, SHAOMING DONG, LE GAO, YUSHENG DING, XIANGYU ZHANG, Shanghai Institute of Ceramics, CAS, Shanghai, China
- 10.35 Break

Chair: D. KOCH, Germany

- 11.05 **CN-4:IL06 High Temperature Creep of Metal- and Ceramic-matrix Composites**
S.T. MILEIKO, Inst. of Solid State Physics of RAS, Chernogolovka, Russia
- 11.40 **CN-4:IL07 Modeling Infiltration of Fiber Preforms From X-ray Tomography Data**
G.L. VIGNOLES, W. ROS, I. SZELENGOWICZ, Univ. Bordeaux 1, LCTS, Pessac, France; C. MULAT, C. GERMAIN, M. DONIAS, Univ. Bordeaux, IMS, Talence, France

Session CN-2 - Processing and Fabrication

- 12.15 **CN-2:IL01 Fabrication, Microstructures, Mechanical Properties and High Temperature Performance of Tungsten Matrix Composites Reinforced by TiC and ZrC Particles**
YU ZHOU, YUJIN WANG, Guiming SONG, Taiquan ZHANG, School of Materials Science and Engineering, Harbin Institute of Technology, Harbin, China
(rescheduled time as for Author request)

Session CA-3 - Shape Forming and Compaction Mechanisms

Room: AUDITORIUM

Chair: A. ROOSEN, Germany

- 15.00 *CA-3:IL06* **New Developments in Electrophoretic Deposition Processing**
T. UCHIKOSHI, T.S. SUZUKI, Y. SAKKA, Nano Ceramics Center, National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan
- 15.30 *CA-3:IL07* **Improving the Porosity Features Control of Ceramic Cellular Components through a Modified Gelcasting Process**
M. LOMBARDI, L. MONTANARO, Dept. DISMIC-Politecnico di Torino, INSTM- R.U. Polito - LINCE Lab., Torino, Italy; S. MEILLE, J. CHEVALIER, Université de Lyon, INSA-Lyon, MATEIS, CNRS UMR 5510, Villeurbanne, France
- 16.00 *CA-3:L08* **Processing and Superplastic Deformation of Zirconia-based Ceramic Nanocomposites**
K. VANMEENSEL, H. SHENG, A. LAPTEV, A.K. SWARNAKAR, O. VAN DER BIEST, J. VLEUGELS, Dept. of Metallurgy and Materials Eng., Katholieke Universiteit Leuven, Heverlee (Leuven), Belgium
- 16.20 *CA-3:L09* **Saccharides Derivatives in Shaping of Ceramic Powders - New Monomers and Dispersants**
P. BEDNAREK, M. SZAFRAN, T. MIZERSKI, Faculty of Chemistry, Warsaw University of Technology, Warsaw, Poland
- 16.40 *Break*

Room: AUDITORIUM

Chair: K. HABERKO, Poland

Session CA-1 - Powder Synthesis and Characterization

- 17.00 *CA-1:L21* **Sol-gel Synthesis Assisted by Supercritical CO₂ - A Flexible Process for Ceramic Powder and Membrane Preparation**
A. HERTZ¹, V. DURAND¹, S. SARRADE¹, C. GUIZARD², A. JULBE³, J.-C. RUIZ¹, F. CHARTON¹, ¹CEA, DEN/DTCD/SPDE/LFSM, Bagnols sur Ceze, France; ²Lab. de Synthèse et Fonctionnalisation des Céramiques, FRE 2770 CNRS-Saint-Gobain C.R.E.E., Cavailon, France; ³Institut Européen des Membranes, UMR 5635 CNRS-UMI-ENSCM, UM2-CC047, Montpellier, France
- 17.20 *CA-1:L25* **Microemulsion Synthesis Strategies for ZrW₂O₈ Precursors**
I. VURAL¹, **N. KHAZENI**¹, B. MAVIS², G. GÜNDÜZ¹, Ü. ÇOLAK², ¹Dept. of Chemical Engineering, METU, Ankara, Turkey; ²Dept. of Mechanical Engineering, HU, Ankara, Turkey
- 17.40 *CA-1:L26* **Production of Nanopowders with the Help of Fiber Laser**
M. IVANOV, Yu. KOTOV, O. SAMATOV, Institute of Electrophysics, Ural Division of Russian Academy of Sciences, Russia

Session CA-4 - Sintering and Related Phenomena

- 18.00 *CA-4:L12* **Microstructural and Phenomenological Analysis of the Reaction Sintering of a Nickel Ferrite Based Cermet**
G. LARGILLER, C. CARRY, D. BOUVARD, Grenoble-INP, CNRS/UJF, SIMaP, St Martin d'Herès, France; A. GABRIEL, Rio Tinto Alcan, CRV, Voreppe, France
- 18.20 *CA-4:L15* **Numerical Modelling and Experimental Characterization of the Pyroplasticity in Ceramic Materials During Sintering**
P. BENE, D. BARDARO, D. BELLO, O. MANNI, Consorzio Cetma, Brindisi, Italy

Session CB-8 - Porous Ceramics

Room: LE PLEIADI

Chair: J. BILL, Germany

- 15.30 **CB-8:IL01 Confined Molecules in Porous Media for Controlled Release: NMR Characterization**
T. AZAIS, N. FOLLIET, G. LAURENT, F. BABONNEAU, Université Pierre et Marie Curie-Paris6 and CNRS, UMR 7574, Lab. Chimie de la Matière Condensée de Paris, France; F. GUENNEAU, A. NOSSOV, Université Pierre et Marie Curie and CNRS, Lab. de RMN des Matériaux Nanoporeux, FRE 3230, Paris, France; D. AIELLO, F. TESTA, Dept. of Chemical Eng. and Matls, CR-INSTM, University of Calabria, Arcavacata di Rende (CS), Italy
- 16.00 **CB-8:IL02 Porous 1D Ceramics and Composite Ceramics via Electrochemical, Gas Phase and Precursor Routes**
J.J. SCHNEIDER, Technische Universität Darmstadt, Fachbereich Chemie Eduard Zintl Institut Anorganische Chemie, Darmstadt, Germany
- 16.30 **CB-8:L05 Investigation on the Microstructure and Permeability of Porous SiC Ceramics**
IN-HYUCK SONG, IL-MIN KWON, HAI-DOO KIM, YOUNG-WOOK KIM, Korea Institute of Materials Science, The University of Seoul, Changwon, Korea

Session CB-2 - Near-Net-Shape Techniques

- 16.50 **CB-2:IL02 Ceramic Injection Moulding for Microtechnology**
J. HAUSSELT, Karlsruhe Institute of Technology and IMTEK, University of Freiburg, Germany

THURSDAY JUNE 10 AFTERNOON

Session CB-12.2 - Layered and Graded Thin and Thick Coatings

Room: ORSA MINORE

Chair: D.V. SHTANSKY, Russia

- 15.20 *CB-12.2:IL04* **Development of Functionally Graded Coating Based Plasma Facing Materials for Fusion Reactor**
CHANG-CHUN GE^{1,2}, SHUANG-QUAN GUO², YUN-BIAO FENG², ZHANG-JIAN ZHOU¹, WEI-LIANG LIU^{2,3}, **JUAN DU**⁴, ¹Inst. Nuclear Materials, Univ. of Science and Technology Beijing (USTB), Beijing; ²School of Materials Science & Eng., Southwest Jiaotong Univ., Chengdu; ³Jingdezhen Ceramic Inst., Jingdezhen, P.R. China; ⁴Max-Planck-Institute for Plasma Physics, München, Germany
- 15.50 *CB-12.2:IL05* **Electrodeposition of Functional Molecules for Biomaterials**
T. HANAWA, K. OYA, K. KURASHIMA, Y. TSUTSUMI, H. DOI, N. NOMURA, Institute of Bioamaterials and Bioengineering, Tokyo Medical and Dental University, Tokyo, Japan
- 16.20 *CB-12.2:L06* **Multifunctional Ti Oxide-based Films for Biomedical Applications**
A.C. ALVES¹, P. PONTIAUX², **L.A. ROCHA**^{1,3}, ¹CT2M, Univ. of Minho, Portugal; ²LGPM - Ecole Centrale Paris, France; ³DEM - Univ. of Minho, Portugal
- 16.40 *Break*

Session CB-11.4 - Direct Production of SHS Products and their Characterization

Room: ORSA MINORE

Chair: A.S. ROGACHEV, Russia

- 17.10 *CB-11.4:IL06* **Catalytic Properties of SHS Products**
G.G. XANTHOPOULOU, Institute of Materials Science, "Demokritos" National Center for Scientific Research, Athens, Greece
- 17.40 *CB-11.4:IL07* **Self-Propagating High-Temperature Synthesis of Cast Ceramics: Phenomenology, Mechanisms, Applications, and Practical Implementation**
V.I. YUKHVID, Institute of Structural Macrokinetics and Materials Science, RAS, Chernogolovka, Moscow region, Russia

THURSDAY JUNE 10 AFTERNOON

Session CC-1 - Corrosion

Room: ZENITH

Chair: E.J. OPILA, USA

- 15.00 *CC-1:IL08* **Tribological Performance of Polymer Coatings for Aggressive Sliding Conditions**
A.A. POLYCARPOU, E. ESCOBAR NUNEZ, SEUNG MIN YEO,
Dept. of Materials Science and Engineering, University of Illinois at
Urbana-Champaign, Urbana, IL , USA
- 15.30 *CC-1:IL09* **Changes in Surface Properties of Alumina Toughened Zirconia (ATZ) by Hydrothermal Aging and Wear**
J. SCHNEIDER, CH. KAPS, Bauhaus University Weimar, Dept. of
Building and Material Chemistry, Weimar, Germany; S. BEGAND,
TH. OBERBACH, Mathys Orthopaedie GmbH, Moersdorf, Germany
- 16.00 *CC-1:L10* **Corrosion of Single Crystal Cordierite by Model Diesel Particulate Ashes**
N. MAIER, K.G. NICKEL, Univ. of Tuebingen, Applied Mineralogy,
Tuebingen, Germany; C. ENGEL, A. MATTERN, Robert-Bosch AG,
Stuttgart, Germany
- 16.20 *CC-1:L12* **Study of Corrosion Behavior of Conventional and Nanostructured WC-Co HVOF Sprayed Coats**
SH. KHAMENEH ASL¹, M.R. SAGHI BEYRAGH², M.G. KAKROUDI¹,
¹Dept. of Mats Eng., Faculty of Mechanical Engineering, University
of Tabriz, Tabriz, Iran; ²Faculty of Matls Eng., Sahand University of
Technology, Tabriz, Iran
- 16.40 *Break*

Session CC-2 - Friction and Wear

Room: ZENITH

Chair: K. MIURA, Japan

- 17.10 *CC-2:IL01* **Wear Mechanisms of Nanocrystalline Ceramic/Metal Composites**
F. GAERTNER, H. KREYE, T. KLASSEN, Helmut Schmidt University,
Hamburg, Germany
- 17.40 *CC-2:IL02* **Simulation of Atomic-scale Wear of Graphene**
N. SASAKI, Dept. of Matls and Life Science, Seikei University, Tokyo,
Japan
- 18.10 *CC-2:IL03* **Wear in Nanofriction**
R. BENNEWITZ, P. EGBERTS, INM - Leibniz Institute for New
Materials, Saarbrücken, Germany

THURSDAY JUNE 10 AFTERNOON

Session CE-2 - Nitride, Carbide and Boride Ceramics

Room: **VENERE**

Chair: B. MIKIJELJ, USA

- 15.00 *CE-2:IL17* **Hot Rolling Steels and Super Alloys with Silicon Nitride Tools**
R. DANZER, Institut für Struktur- und Funktionskeramik, Montanuniversität Leoben, Leoben, Austria
- 15.30 *CE-2:IL18* **Silicon Nitride Ceramics for Product and Process Innovation**
K. BERROTH, FCT Ingenieurkeramik GmbH, Rauenstein, Germany
- 16.00 *CE-2:L19* **Electrical Discharge Machining of B4C-TiB2 Composites**
O. MALEK^{1,2}, **J. VLEUGELS**², **S. HUANG**², **Y. PEREZ**³, **P. DE BAETS**³, **B. LAUWERS**¹, ¹K.U. Leuven, Dept. of Mechanical Eng., Leuven, Belgium; ²K.U. Leuven, Dept. of Metallurgy and Materials Eng., Leuven, Belgium; ³Universiteit Gent, Mechanical Construction and Production - Lab. Soete, Gent, Belgium
- 16.20 *Break*

Session CE-4 - Ternary Compounds

Room: **VENERE**

Chair: M.W. BARSOUM, Japan

- 16.50 *CE-4:IL06* **Structure and Property Control of Layered Ternary Carbides and Nitrides**
JINGYANG WANG, **YANCHUN ZHOU**, High-performance Ceramic Division, Shenyang National Lab. for Materials Science, Institute of Metal Research, CAS, Shenyang, China
- 17.20 *CE-4:L07* **Microstructure Evolution During the High Temperature Oxidation of Ti2AlN Ceramics**
BAI CUI, **W.E. LEE**, **R. SA**, **D.D. JAYASEELAN**, Dept. of Materials, Imperial College London, London, UK; **F. INAM**, **M.J. REECE**, Centre for Materials Research and School of Engineering and Materials Science, Queen Mary, University of London, London, UK
- 17.40 *CE-4:L08* **First-principles Investigation of Formation and Migration of Defects in Layered Ternary Carbides (MAX Phases)**
JIEMIN WANG, **JINGYANG WANG**, **YANCHUN ZHOU**, High-performance Ceramics Division, Shenyang National Laboratory for Materials Research, Institute of Metal Research, CAS, Shenyang, China
- 18.00 *CE-4:L09* **Porous Ti3AlC2 as Catalyst Support for Cleaning Vehicle Exhaust**
XIAOHUI WANG, **Y.C. ZHOU**, Shenyang National Laboratory for Materials Research, Institute of Metal Research, CAS, Shenyang, China

Sub-session CF-3.1 - Ceramic Catalysts

Room: ALBA 2

Chair: J.L.G. FIERRO, Spain

- 15.00 *CF-3.1:L06* **Cobalt-supported Alumina or Clay as Catalytic Film Prepared by Electrophoretic Deposition for Hydrogen Release Applications**
R. CHAMOUN^{1,2}, U.B. DEMIRCI¹, D. CORNU³, Y. ZAATAR², A. KHOURY², P. MIELE¹, ¹Université Lyon 1, CNRS, UMR 5615, Lab. des Multimatériaux et Interfaces, Villeurbanne, France; ²Université Libanaise, Fac. des Sciences II, Lab. de physique appliquée, Jdeidet El Metn, Liban; ³Université Montpellier 2, CNRS-ENSCM, UMR 5635, Inst. Européen des Membranes, Montpellier, France
- 15.20 *CF-3.1:L07* **BaYMn2O5+d: A Potential Material for Oxygen-Storage Applications**
T. MOTOHASHI, T. UEDA, Y. MASUBUCHI, S. KIKKAWA, Graduate School of Engineering, Hokkaido University, Sapporo, Japan; M. TAKIGUCHI, T. SETOYAMA, Mitsubishi Chemical Group, Science and Technology Research Center, Inc., Yokohama, Japan
- 15.40 *CF-3.1:L08* **Metal Oxides as Catalyst Supports for Hydrogen Release by Solvolysis of Boron Hydrides**
O. AKDIM, U.B. DEMIRCI, P. MIELE, Université Lyon 1, CNRS, UMR 5615, Lab. des Multimatériaux et Interfaces, Villeurbanne, France
- 16.00 *CF-3.1:L09* **High Activity Photocatalyst Powder Formed by Three Ceramic Oxides**
L. PERAZOLLI¹, G.F. PEGLER¹, R.A.J. INGINO¹, M.R.A. SILVA², M.O. ORLANDI¹, M.A. ZAGHETE¹, J.A. VARELA¹, ¹UNESP, Araraquara Chemical Institute, Araraquara, São Paulo, Brazil; ²Itajubá Federal University, Itajubá, Minas Gerais, Brasil
- 16.20 *Break*

Sub-session CF-4.3 - Materials for Electrochemistry

Room: ALBA 2

Chair: G. PLESCH, Slovak Republic

- 16.50 *CF-4.3:L06* **Photocatalytic Efficiency of ZnO/TiO2 Composite Plates in Degradation of RR180 Dye Solutions**
M. KONYAR^a, D. OVALI^a, H.C. YATMAZ^b, C. DURAN^a, K. ÖZTÜRK^a, ^aGebze Institute of Technology, Materials Science & Engineering Dept., Cayirova Campus Gebze, Kocaeli, Turkey; ^bGebze Institute of Technology, Environmental Engineering Dept., Muallimkoy Campus Gebze, Kocaeli, Turkey
- 17.10 *CF-4.3:L07* **Chemical Etching of Advanced Ceramics**
H.T. TING, School of Engineering & Science, Curtin University of Technology, Miri, Malaysia; K.A. ABOU-EL-HOSSEIN, Dept. of Mechanical & Aeronautical Engineering, University of Pretoria, Pretoria, South Africa; H.B. CHUA, School of Engineering & Science, Curtin University of Technology, Miri, Malaysia

Session CG-4 - Thin Films and Coatings for Tribological and Multifunctional Applications

Room: URANO

Chair: R. GADOW, Germany

- 15.00 **CG-4:IL10 WC-Co Coatings Fabricated by Warm Spraying for Wear Protection**
S. KURODA, G. SUNDARARAMAN, M. WATANABE, M. KOMATSU, NIMS, Tsukuba, Ibaraki, Japan; K. SATO, J. KITAMURA, Fujimi Inc., Japan
- 15.30 **CG-4:IL11 Plasma Assisted Vapor Deposition on Nanostructured Hard Coatings**
P. MAYRHOFER, Physical Metallurgy and Materials Testing, Montanuniversität Leoben, Leoben, Austria
- 16.00 **CG-4:L12 Characterization of Phase Transformation, Microstructure and Tribological Properties of Ni-B Coating during Heat Treatment**
S. PAL, N. VERMA, V. JAYARAM, S.K. BISWAS, Dept. of Materials Engrg, Indian Institute of Science, Bangalore, India; Y.E. Riddle, UCT Coatings Inc., FLorida, USA
- 16.20 **CG-4:L13 Wear Resistance of AISI M2 Tool Steel Coated with TiN by PVD and Evaluated by the Pin-on-disc Testing**
J.D. BRESSAN, Dept. of Mechanical Eng., UDESC Joinville, Joinville, SC, Brazil; F. RESIN, Engenharia de Processos, Ciser, Cia Industrial H. Carlos Schneider, Joinville, SC, Brazil; R. GERBASI, Istituto ICIS, CNR, Padova, Italy
- 16.40 **CG-4:L14 Tribological Behavior of Nanostructured Composite Coatings of Ceramics Manufactured by Suspension Plasma Spraying**
G. DARUT, H. AGEORGES, A. DENOIRJEAN, G. MONTAVON, P. FAUCHAIS, SPCTS - UMR CNRS 6638, University of Limoges, Limoges, France
- 17.00 *Break*

Chair: P. MAYRHOFER, Austria

- 17.30 **CG-4:L15 Multi-nanolayering Effect on Carbon Films Mechanical Properties and Internal Stress**
N. LAIDANI, R. BARTALI, V. MICHELI, G. GOTTARDI, Fondazione Bruno Kessler, Centro Materiali e Microsistemi, Trento (Povo), Italy; P. CHEYSSAC, Lab. de Physique de la Matiere Condensée, UMR 6622 CNRS, Faculté des Sciences, Nice Cedex, France
- 17.50 **CG-4:L16 Hydrogen Effect on Structure and Mechanical Properties of ZnO Films Deposited by Sputtering in Ar-H₂ Plasma**
R. BARTALI, I. LUCIU, V. MICHELI, G. GOTTARDI, N. LAIDANI, Fondazione Bruno Kessler, Centro Materiali e Microsistemi, Povo (Trento), Italy
- 18.10 **CG-4:L17 Mechanical Reliability of ZnO Thin Films Used in Glass Stacking Applications**
F. CONCHON, P-O. RENAULT, P. GOUDEAU, E. LE BOURHIS, PHYMAT - UMR 6630, Poitiers, France; E. SONDERGARD, E. BARTHEL, S. GRACHEV, SVI - UMR 125, Aubervilliers, France; E. GOUARDES, V. RONDEAU, R. GY, SGR, Aubervilliers, France; R. LAZZARI, J. JUPILLE, INSP - UMR 7588, Paris, France; N. BRUN, LPS - UMR 8502, Orsay, France

Session CH-4 - Varistors and Thermistors

Room: SIRIO

Chair: A. FETEIRA, UK

- 15.00 *CH-4:IL01* **Low Temperature Deposition of Nickel Manganite Thin Films**
SONG WON KO, JING LI, E. DICKEY, S. TROLIER-McKINSTRY,
Materials Research Institute, Pennsylvania State University, University
Park, PA, USA
- 15.30 *CH-4:IL02* **Energetics and Electronic Structure of Native Defects and Dopants in ZnO**
F. OBA, Dept. of Materials Science and Eng., Kyoto University, Kyoto,
Japan
- 16.00 *CH-4:IL03* **Preparing and Electric Properties of BaTiO₃-based Lead-free PTCR Ceramics**
G.R. LI, S.L. LENG, L.Y. ZHENG, J.T. ZENG, H.R. ZENG, T.B. WANG,
Q.R. YIN, Shanghai Institute of Ceramics, Chinese Academy of
Sciences, Shanghai, China
- 16.30 *CH-4:IL04* **Defect Structure of Zinc Oxide and Related Properties**
H. HANEDA¹, I. SAKAGUCHI¹, N. OHASHI¹, H. RYOKEN^{1, 2}, S.
HISHITA¹, ¹National Institute for Materials Science, Tsukuba, Ibaraki,
Japan; ²Dept. of Appl. Sci. for Electronics & Matis, Kyushu University,
Kasuga, Fukuoka, Japan
- 17.00 *CH-4:L09* **Defect Chemistry of Ba-excess Donor-doped BaTiO₃ Thermistor Ceramics**
H. KATSU, C. PITHAN, R. WASER, Forschungszentrum Jülich, Jülich,
Germany
- 17.20 *CH-4:L10* **Structure, Microstructure and Electrical Properties of Mn_{3-x}Co_xO₄ (0<x<3) Spinel Ceramics: an Interesting System for Negative Temperature Coefficient (NCT) Thermistors**
H. BORDENEUVE, CH. TENAILLEAU, S. GUILLEMET-FRITSCH,
A. ROUSSET, Institut Carnot CIRIMAT/UPS/CNRS Université Paul
Sabatier, Toulouse, France; V. POULAIN, S. SCHUURMAN, Vishay,
Bruxelles, Belgium
- 17.40 *Break*

Session CH-1 - Dielectric and Microwave Materials

Room: SIRIO

Chair: P. LEGAGNEUX, France

- 18.00 CH-1:L12 ***Electric Field Breakdown of Polymer Based Nanocomposite at Room and Cryogenic Temperatures***
H. RODRIGO¹, G.H. HELLER¹, A. INGROLE², Z (RICHARD) LIANG², D.G. CROOK¹, S.L. RANNER¹, ¹Center for Advanced Power Systems, Florida State University, Tallahassee, FL, USA; ²Dept. of Industrial and Manufacturing Engineering, FAMU-FSU College of Engineering, Tallahassee, FL, USA
- 18.20 CH-1:L13 **High-performance Varactors**
A. TESTINO, Innovative Task Corporate Material R&D, EPCOS OHG, Deutschlandsberg, Austria
- 18.40 CH-1:L14 **Influence on the Annealing on the Thermal Stability of Ge-Sb-Te Materials for Recording Devices**
S.A. KOZYUKHIN, Kurnakov Institute of General and Inorganic Chemistry, Moscow, Russia; A.A. SHERCHENKOV, Moscow Institute of Electronic Technology, Russia
- 19.00 CH-1:L15 **Low Temperature Electrical and Dielectric Properties of Nb Doped BaSnO₃**
P. SINGH, Dept. of Applied Physics, Inst. of Technology, Banaras Hindu University, Varanasi, India; O. PARKASH, D. KUMAR, Dept. of Ceramic Engineering, Inst. of Technology, Banaras Hindu University, Varanasi, India

Session CH-2 - Ferroelectrics, Piezoelectrics

Room: GIOVE

Chair: T. TSURUMI, Japan

- 16.30 **CH-2:L15 Electromechanical Properties of BaTiO₃ Ceramics Prepared by Spark Plasma Sintering**
H. MAIWA, N. MATSUMOTO, Shonan Institute of Technology, Fujisawa, Japan
- 16.50 **CH-2:L17 Impedance Modelling of Multi-layer Ceramic Capacitors**
JONG-SOOK LEE, YONG KIM, EUI-CHOL SHIN, HYUN-HO SEO, Chonnam National University, Gwangju, Korea; JI-YOUNG PARK, CHANG-HOON KIM, GANG-HUN HUR, Samsung Electro-mechanics, Korea
- 17.10 **CH-2:L18 Stress Induced Effect on Electrical Properties of CSD-derived Ferroelectric Thin Films**
H. SUZUKI¹, T. OHNO², N. SAKAMOTO¹, N. WAKIYA¹, T. MATSUDA², T. HAYASHI³, ¹Shizuoka University, Hamamatsu, Shizuoka, Japan; ²Kitami Institute of Technology, Japan; ³Shonan Institute of Technology, Japan
- 17.30 **CH-2:L19 Synergistic Information Encoding by Combinatorial Pulse Operation of Ferroelectric Ceramic Capacitors**
D. RICINSCHI, T. KANASHIMA, M. OKUYAMA, Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka, Japan

THURSDAY JUNE 10 AFTERNOON

Session CH-6.2 - Advances in Materials, Synthesis and Processing

Room: ORSA MAGGIORE

Chair: V.S. AMARAL, Portugal

- 15.30 *CH-6.2:IL01* **Multiferroicity due to Charge Ordering**
F. VAN DEN BRINK, Leibniz Institute IFW Dresden, Dresden, Germany
- 16.00 *CH-6.2:IL02* **Synthesis and Characterization of Aurivillius Phase Thin Films**
L. KEENEY, P.F. ZHANG, Tyndall National Institute, "Lee Maltings", Cork, Ireland; C. GROH, Materials Science Dept., Friedrich Schiller University of Jena, Germany; M.E. PEMBLE, R.W. WHATMORE, Tyndall National Institute, "Lee Maltings", Cork, Ireland
- 16.20 *Break*

Session CH-6.6 - New Effects

Room: ORSA MAGGIORE

Chair: A.P. PYATAKOV, Russia

- 16.50 *CH-6.6:IL01* **Electromagnons in Multiferroics**
D. DREW, CNAM, Physics Dept., University of Maryland, College Park, MD, USA
- 17.20 *CH-6.6:IL02* **Novel and Original Features on the Model Multiferroic BiFeO₃ Under Strain Effects**
B. DKHIL, UMR-8580 Ecole Centrale Paris - CNRS, Chatenay-Malabry, France
- 17.50 *CH-6.6:IL03* **Multiferroic Phenomena in Charge Ordered Manganites**
V.S. AMARAL, F. FIGUEIRAS, Depto de Física and CICECO, Univ. de Aveiro, Aveiro, Portugal; I.K. BDIKIN, A.L. KHOLKIN, Depto de Engenharia Cerâmica e Vidro and CICECO, Univ. de Aveiro, Aveiro, Portugal; A.M.L. LOPES, CFNUL, Lisboa, Portugal; J.P. ARAÚJO, Depto de Física and IN-IFIMUP, Univ. do Porto, Porto, Portugal; J.G. CORREIA, CERN EP, Geneva, Switzerland and Inst. Tecnológico Nuclear, Sacavém, Portugal; Y. TOMIOKA, CERC, National Inst. of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, Japan; Y. TOKURA, Dept. of Applied Physics, University of Tokyo, Tokyo, Japan

THURSDAY JUNE 10 AFTERNOON

Session CJ-1 - Science of Silicate Ceramics

Room: **SMERALDO 1**

Chair: D. CHATEIGNER, France

- 15.30 *CJ-1:IL12* **Synthesis and Properties of Hybrid Lamellar Silica**
G. TOUSSAINT, C. HENRIST, R. CLOOTS, Chemistry of Inorganic Materials, University of Liege, Liege, Belgium
- 16.05 *CJ-1:IL13* **Simple Rheological Tests and Protocols for SME Ceramic Producers**
C. GALASSI, D. GARDINI, CNR-ISTEC, Faenza, Italy
- 16.40 *Break*

Session CJ-4 - Decoration, Colour and Design of Silicate Ceramics

Room: **SMERALDO 1**

Chair: G. MONROS, Spain

- 17.10 *CJ-4:IL01* **Digital Decoration of Ceramic Tiles: Current Situation and Outlook**
M. DONDI, CNR-ISTEC, Faenza, Italy
- 17.45 *CJ-4:IL02* **Innovations and New Trends in Ceramic Tile Decoration**
A. MORENO BERTO, Instituto de Tecnologia Ceramica, AICE, Universitat Jaume I, Castellon, Spain
- 18.20 *CJ-4:L03* **CoAl₂O₄ Nanopigment Obtained by Combustion Synthesis**
F. BONDIOLI, SH. SALEM, S.H. JAZAYERI, A. ALLAHVERDI, M. SHIRVANI, Dept. of Material and Environmental Engineering, University of Modena and Reggio Emilia, Modena, Italy; School of Chemical Engineering, Iran University of Science and Technology, Tehran, Iran

THURSDAY JUNE 10 AFTERNOON

Session CK-2 - Characterization

Room: **SMERALDO 3**

Chair: P. STRAKA, Czech Republic

- 15.10 *CK-2:L11* **Development of a National Database for Facilitating Widespread Recycling of Fly Ash into Geopolymer Concrete**
E.N. ALLOUCHE, I. DIAZ, Dept. of Civil Engineering, Louisiana Tech University, Ruston, LA, USA
- 15.30 *CK-2:L12* **New Geopolymers Based on Electric Arc Furnace Slag**
M.C. BIGNOZZI, F. SANDROLINI, Dipartimento di Chimica Applicata e Scienza dei Materiali, Università di Bologna, Bologna, Italy; L. BARBIERI, I. LANCELLOTTI, Dipartimento di Ingegneria dei Materiali e dell'Ambiente, Università di Modena e Reggio Emilia, Modena, Italy
- 15.50 *CK-2:L13* **Phase and Strength Evolution of Fly Ash Geopolymers Exposed to Standard Fire Conditions**
W.D.A. RICKARD, A. VAN RIESSEN, J. TEMUJIN, R.P. WILLIAMS, Centre for Materials Research, Curtin University of Technology, Perth, WA, Australia
- 16.10 *CK-2:L14* **Evaluation of the Thermal Conductivity of Model Materials and Elaboration of a Porous Material**
J. BOURRET, E. PRUD'HOMME, S. ROSSIGNOL, D. SMITH, GEMH ENSCI, Limoges, France
- 16.30 *Break*

Session CK-3 - Industrialization & Application

Room: **SMERALDO 3**

Chair: K. SAGOE-CRENTSIL, Australia

- 17.15 *CK-3:L11* **Geopolymer Coating for Rehabilitation of Concrete-Based Wastewater Collection Systems**
E. ALLOUCHE, C. MONTES, Department of Civil Engineering, Louisiana Tech University, Ruston, LA, USA
- 17.40 *CK-3:L12* **Recycling of MSWI Residues by Means of Stabilization/Solidification in Geopolymer-based Matrix**
R. CIOFFI, F. COLANGELO, Dept. of Technology, University Parthenope, Naples, Italy; F. MONTAGNARO, L. SANTORO, University Federico II, Naples, Italy
- 18.05 *CK-3:L14* **How to Assess the Environmental Sustainability of Geopolymers? A Live Cycle Perspective**
M. WEIL, Karlsruher Institut für Technologie (KIT), Institute for Technology Assessment and Systems Analysis (ITAS), Germany; K. DOMBROWSKI, Freiberg University of Mining and Technology, Institute for Ceramic, Glass, and Construction Materials, Germany; A. BUCHWALD, Bauhaus-University Weimar, Chair of Building Chemistry, Germany

THURSDAY JUNE 10 AFTERNOON

Session CM-4 - Theory, Modeling and Simulation

Room: **SMERALDO 2**

Chair: S.C. HENDY, New Zealand

- 15.00 *CM-4:IL05* **Computational Modeling and Design of Point Defects in Bioactive Calcium Phosphates**
K. MATSUNAGA, Dept. of Materials Science & Eng., Kyoto University, Kyoto, Japan; Nanostructures Research Lab., Japan Fine Ceramics Center, Nagoya, Japan
- 15.30 *CM-4:IL06* **1D Nanostructures from Carbon and Other Elements**
G. SEIFERT, Physikalische Chemie, Technische Universität Dresden, Dresden, Germany
- 16.00 *CM-4:L07* **Theory of Molecular Electronics: Wires, Diodes, and Transistors**
S.P. KARNA, G. MALLICK, US Army research Lab., Weapons and Materials Research Directorate, Aberdeen Proving Ground, MD, USA; H. HE, R. PANDEY, Dept. of Physics and Multi-Scale Technology Institute, Michigan Technological University, Houghton, MI, USA
- 16.20 *CM-4:L08* **Thermal Conductivity of Ceramic Nanocomposites - The Phase Mixture Modeling Approach**
W. PABST, J. HOSTASA, Institute of Chemical Technology, Prague, Dept. Glass and Ceramics, Prague, Czech Republic

16.40 *Break*

Chair: K. MATSUNAGA, Japan

- 17.10 *CM-4:L09* **Estimation Technique for Optical Dielectric Constant of Polymorphous SiO₂ Through First-principles Molecular Orbital Calculation**
K. HIROSE, D. KOBAYASHI, Institute of Space and Astronautical Science, JAXA, Japan; S. IGARASHI, H. NOHIRA, Tokyo City University, Japan
- 17.30 *CM-4:IL10* **Structure, Magnetic and Spintronic Characteristics of Sandwiched Metal-organic Clusters and Molecular Wires**
JINLAN WANG, XIUYUN ZHANG, LIYAN ZHU, Department of Physics, Southeast University, Nanjing, P.R. China
- 18.00 *CM-4:IL11* **Models and Simulations of the Growth of Carbon Nanotubes**
S.C. HENDY, D. SCHEBARCHOV, MacDiarmid Institute for Advanced Materials and Nanotechnology, Victoria University of Wellington, Wellington, New Zealand; A. AWASTHI, Industrial Research Ltd, Lower Hutt, New Zealand; B. COX, University of Wollongong, Wollongong NSW, Australia

THURSDAY JUNE 10 AFTERNOON

Session CN-5 - Composite for Thermal Management

Room: **AMBRA**

Chair: T. OHJI, Japan

- 15.30 *CN-5:IL01* **Integration of High Conductivity Carbon Based Materials for Thermal Management Applications: Technical Issues and Challenges**
M. SINGH, A.L. GYEKENYESI, Ohio Aerospace Institute, NASA Glenn Research Center, Cleveland, OH, USA; R. ASTHANA, Dept. of Engineering & Technology, University of Wisconsin-Stout, Menomonie, WI, USA
- 16.00 *CN-5:IL02* **Processing and Thermomechanical Properties of Copper-Carbon Nanofibres Composites for Thermal Management Applications**
J.M. MOLINA-ALDAREGUIA, Fundación IMDEA-Materiales, Madrid, Spain; J.M. CÓRDOBA, M. ODÉN, IFM, Linköping University, Sweden; J. TAMAYO-ARIZTONDO, M.R. ELIZALDE, CEIT and Tecnun, San Sebastián, Spain; E. NEUBAUER, AIT-Austrian Inst. of Technology GmbH, Seibersdorf, Austria
- 16.30 *CN-5:L04* **Low Cost Carbon Fiber Based Composites**
K. KOWBEL, FMC, Tucon, AZ, USA
- 16.50 *Break*

Session CN-6 - Applications

Room: **AMBRA**

Chair: J.A. DI CARLO, USA

- 17.20 *CN-6:IL01* **Carbon/Carbons and Their Industrial Applications**
R. WEISS, Schunk Kohlenstofftechnik GmbH, Heuchelheim, Germany
- 17.50 *CN-6:IL02* **CMCs for Friction Applications**
W. KRENKEL, H. MUCHA, N. LANGHOF, Ceramic Materials Engineering, University of Bayreuth, Bayreuth, Germany

FRIDAY JUNE 11 MORNING

Session CA-4 - Sintering and Related Phenomena

Room: AUDITORIUM

Chair: F.J. CLEMENS, France

- 9.30 *CA-4:IL17* **Spark Plasma Sintering of Ceramics: From Practice to Modelling**
ZHE ZHAO, Dept. of Physical-Inorganic and Structural Chemistry, Stockholm University, Stockholm, Sweden
- 10.00 *CA-4:L21* **Simultaneous Synthesis and Sintering of Al₂O₃/Mo₂N Composites Using Capsule-free Nitrogen Hot Isostatic Pressing and their Characterization**
K. HIROTA, K. TAKAOKA, Y. MURASE, M. KATO, Dept. of Molecular Chemistry & Biochemistry, Doshisha University, Kyo-Tanabe, Japan
- 10.20 *Break*

Session CA-5 - Innovation in Processing Equipment and Technology

Room: AUDITORIUM

Chair: D. HEINRICH, Germany

- 10.50 *CA-5:L03* **The Rapid Automated Materials Synthesis Instrument (RAMSI): A High Throughput Combinatorial Robot for Nanoceramics Discovery**
TIAN LIN, S. KELLICI, K. GONG, K. THOMPSON, J.A. DARR, University College London, London, UK
- 11.10 *CA-5:IL04* **Fabrication and Anisotropic Properties of Highly Textured Ceramics by Colloidal Processing in a High Magnetic Field**
Y. SAKKA, T.S. SUZUKI, T. UCHIKOSHI, National Institute for Materials Science (NIMS), Japan
- 11.40 *CA-5:IL05* **Thermoplastic Shaping - Advances in Extrusion Processes**
F.J. CLEMENS, M.R. ISMAEL, V.L. BUENO, EMPA, Swiss Federal Labs for Materials Testing and Research, Dübendorf, Switzerland
- 12..10 *CA-5:IL06* **Rapid Prototyping of Complex Ceramic Forms**
N. TRAVITZKY, Dept. of Materials Science, Glass and Ceramics, University of Erlangen-Nuremberg, Erlangen, Germany

FRIDAY JUNE 11 MORNING

Session CB-9 - Ultra-high Pressure Ceramics Synthesis and Processing

Room: LE PLEIADI

Chair: K. HIRAGA, Japan

- 9.00 *CB-9:IL02* **Synthesis of New Diamond-like B-C Phases Under High Pressure and Temperatures**
L.C. MING, P.V. ZININ, S.K. SHARMA, Hawaii Institute of Geophysics and Planetology, University of Hawaii, Honolulu, HI, USA
- 9.30 *CB-9:IL03* **High-purity Boron Nitrides: Ultra-high-pressure Synthesis and Properties**
T. TANIGUCHI, National Institute for Materials Science (NIMS), Ibaraki, Japan
- 10.00 *CB-9:IL04* **High-pressure / High-temperature Synthesis of Oxynitrides**
H. HUPPERTZ, Institut für Allgemeine, Anorganische und Theoretische Chemie, Leopold-Franzens-Universität Innsbruck, Innsbruck, Austria; S.A. HERING, Dept. Chemie und Biochemie, Ludwig-Maximilians-Universität München, München, Germany; C.E. ZVORISTE, Technische Universität Darmstadt, Material- und Geowissenschaften, Darmstadt, Germany; I. KINSKI, Fraunhofer-Institut für Keramische Techn. und Systeme, Dresden, Germany
- 10.30 *CB-9:IL05* **Synthesis of Superhard Nanocomposites by Microstructural Design**
E. KROKE, M. SCHWARZ, T. BARSUKOVA, TU Bergakademie Freiberg, Institute for Inorganic Chemistry, Freiberg, Germany; D. RAFAJA, C. SCHIMPF, TU Bergakademie Freiberg, Institute for Materials Science, Freiberg, Germany
- 11.00 *Break*

Session CB-10 - Other Nontraditional Processing Routes

Room: LE PLEIADI

Chair: H. HUPPERTZ, Austria

- 11.30 *CB-10:IL01* **Clay Aerogel Composite Materials**
D.A. SCHIRALDI, M.D. GAWRYLA, S. ALHASSAN, Dept. of Macromolecular Science & Engrg, Case Western Reserve University, Cleveland, OH, USA
- 12.00 *CB-10:IL02* **Heterogeneous Sol-gel Systems - derived Ceramics**
O.A. SHILOVA, I.V. Grebenshikov Institute for Silicate Chemistry of RAS, St. Petersburg, Russia
- 12.30 *CB-10:IL03* **Smart Processing for Ceramics Structure Tectonics: Fabrication of Dielectric Micro Patterns for Artificial Photosynthesis in Terahertz Wave Regions by Using Stereolithography**
S. KIRIHARA, Joining and Welding Research Institute, Osaka University, Osaka, Japan

FRIDAY JUNE 11 MORNING

Session CB-11.5 - Industrialization and Application of SHS Ceramics

Room: ORSA MINORE

Chair: J.A. PUSZYNSKI, USA

- 9.00 *CB-11.5:IL01* **Mass-forced SHS Technology of Ceramic Materials**
O. ODAWARA, Tokyo Institute of Technology, Yokohama, Japan
- 9.30 *CB-11.5:IL02* **Development and Industrialization of Nano Materials (Metal and Ceramic) by SHS Process**
CHANG WHAN WON, Advanced Nanomaterial Dept., Chungnam National University, Daejeon, South Korea
- 10.00 *CB-11.5:IL03* **SHS Refractory Materials Furnon and their Practical Implementations in Kazakhstan and Russia**
Z.A. MANSUROV, Al-Farabi Kazakh National University, Almaty, Rep.of Kazakhstan
- 10.30 *CB-11.5:L04* **On Isolation of Tc into Matrices Using SHS Process**
S. YUDINTSEV, IGEM RAS, Moscow, Russia; E.E. KONOVALOV, IPPE, Obninsk, Russia; A.V. KUPRIN, Moscow, Russia

10.50 *Break*

Chair: O. ODAWARA, Japan

- 11.20 *CB-11.5:IL05* **Development of Science Intensive Production Based on Important Scientific Discoveries**
A.G. MERZHANOV, ISMAN, Chernogolovka, Moscow region, Russia
- 11.50 *CB-11.5:IL06* **Past and Current Accomplishments in Production of Ceramic Powders and Structures by Self-Propagating High-Temperature Synthesis Method**
J.A. PUSZYNSKI¹, A. DEGRAW², ¹South Dakota School of Mines and Technology, Rapid City, SD, USA; ²Advanced Material Technologies, Inc., Morristown, TN, USA
- 12.20 *CB-11.5:L07* **Porous SHS - Ceramics**
Yu.M. MAKSIMOV¹, A.I. KIRDYASHKIN¹, V.K. BAEV², A.N. GUSCHIN¹, ¹Department for Structural Macrokinetics of Tomsk Scientific Centre SB RAS, Tomsk, Russia; ²Khrstianovich Institute of Theoretical and Applied Mechanics, Novosibirsk, Russia

Session CC-2 - Friction and Wear

Room: ZENITH

Chair: V. PRESSER, Germany

- 8.45 **CC-2:IL04 Advanced Evaluation Methods of Residual Stress in Bioceramics Wear Surfaces**
G. PEZZOTTI, Ceramic Physics Lab. and Research Inst. for Nanoscience, Kyoto Institute of Technology, Kyoto, Japan, The Center for Advanced Medical Eng. and Informatics, Osaka University, Osaka, Japan; Dept. of Orthopaedics, Orthopaedic Research Center, Loma Linda University, Loma Linda, CA, USA
- 9.15 **CC-2:L05 In Situ Studies of Coatings Tribology**
C. MURATORE, A.A. VOEVODIN, Air Force Research Lab., Thermal Sciences and Materials Branch, Wright-Patterson AFB, OH, USA
- 9.35 **CC-2:L07 Effect of Polymorphic Zirconia Phases on the Mechanical and Wear Properties of Cr₃C₂-NiCr Cermets**
Y.K. TÜR, A. ÖZER, C. DURAN, Gebze Institute of Technology, GYTE Material Science and Engineering, Kocaeli, Turkey
- 9.55 **CC-2:IL08 Nanoadhesion and Nanopeeling of Nanotube on Graphite**
K. MIURA, M. ISHIKAWA, Dept. of Physics, Aichi Univ. of Education, Kariya, Japan; N. SASAKI, Dept. of Matls and Life Sci., Seikei Univ., Tokyo, Japan
- 10.15 *Break*

Chair: M. GRAHAM, Canada

- 10.35 **CC-2:IL09 Nanoindentation and Small Scale Plasticity**
E. LE BOURHIS, Université de Poitiers, Lab. de Physique des Matériaux, UMR 6630 CNRS, SP2MI, Futuroscope-Chasseneuil, France
- 11.05 **CC-2:IL10 Characterization of Wear Mechanisms of Silicon Carbide Materials**
V. PRESSER, K.G. NICKEL, C. BERTHOLD, Eberhard-Karls-Universität Tübingen, Inst. for Geosciences, Applied Mineralogy, Tübingen, Germany
- 11.35 **CC-2:L11 Study on the Development of Resource-saving High Performance Slurry - Polishing/CMP for HDD Glass Substrates, Using Slurry Mixed with Manganese Abrasives to Replace Ceria Abrasives-**
T.K. DOI, T. YAMAZAKI, S. KUROKAWA, S. ISAYAMA, Y. UMEZAKI, Y. MATSUKAWA, Dept. of Mechanical Engineering, Kyushu University, Fukuoka-shi, Japan; Y. AKAGAMI, Akita Prefecturaru, R&D Center; Y. YAMAGUCHI, Mitsui Mining & Smelting Co., Ltd.; S. KISHII, Fujitsu Lab. Ltd., Japan
- 11.55 **CC-2:L12 Wear Behaviour of Diamond Coated Silicon Nitride Ceramics**
M. HERRMANN, S. SEMPF, A. BALES, M. HOEFER, L. SCHAEFER, B. BLUG, T. HOLLSTEIN, J. KOENIG, Fraunhofer Allianz DIACER, Braunschweig, Germany
- 12.35 **CC-2:IL13 Novel Approaches for Following Atomic Scale Wear**
W.G. SAWYER, Dept. of Mechanical and Aerospace Eng., University of Florida, Gainesville, FL, USA

FRIDAY JUNE 11 MORNING

Session CE-5 - Composites for Extreme Environments

Room: **VENERE**

Chair: G. HILMAS, USA

- 8.45 *CE-5:IL01* **Near-net-shape Thermoplastic Forming of Alumina-silicon Carbide Nanocomposites**
F. KERN, R. GADOW, IFKB - Universität Stuttgart, Stuttgart, Germany
- 9.15 *CE-5:IL02* **Ceramic Composites for High Temperature Propulsion System**
D.B. MARSHALL, Teledyne Scientific, Thousand Oaks, CA, USA
- 9.45 *CE-5:L03* **Evaluation of Fatigue Life of Ceramic Matrix Composites Utilizing Novel Evaluation Technique**
K. TOYOSHIMA, T. HINOKI, A. KOHYAMA, Kyoto University, Uji, Japan
- 10.05 *CE-5:L05* **Thermal Residual Stresses Generated during Processing of Cr-Al₂O₃ Composites and their Influence on Macroscopic Elastic Properties**
W. WEGLEWSKI¹, M. CHMIELEWSKI², D. KALINSKI², K. PIETRZAK^{1,2}, M. BASISTA¹, ¹Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland; ²Institute of Electronic Materials Technology, Poland
- 10.25 *Break*

Chair: A. ROUSSET, France

- 10.55 *CE-5:IL06* **Mechanical Behaviour at High Temperature of Ceramic Matrix Composites and Damage**
P. REYNAUD, M. R'MILI, N. GODIN, G. FANTOZZI, Université de Lyon, INSA-Lyon, MATEIS CNRS UMR 5510, Villeurbanne, France
- 11.25 *CE-5:IL07* **Boron Nitride and Boron Nitride Composites for Applications under Extreme Conditions**
J. EICHLER, C. LESNIAK, ESK Ceramics GmbH & Co. KG, Kempten, Germany
- 11.55 *CE-5:L08* **Microstructural and Thermo-mechanical Characterization of Ytria Ceramic Cores for Investment Casting, With and Without Particulate Reinforcement**
A. BRENTARI, M. VILLA, E. LEONI, C. MINGAZZINI, M. LABANTI, S. SANGIORGI, ENEA, Engineering of Components and Processes Section, Faenza Research Centre, Italy
- 12.15 *CE-5:L09* **Corrosion Resistance Under Wet Atmosphere of Coated and Uncoated Sic-based Composites**
G. DI VITA¹, S. FOUCAUD¹, A. MAÎTRE¹, T. CHARTIER¹, A. DENOIRJEAN¹, O. PREZIOSA¹, G. MONTAVON², C. BARTHÉLEMY³, V. LAURENT³, D. LOMBARD⁴, ¹Lab. Science des Procédés Céramiques et de Traitements de Surface, UMR CNRS 6638, Université de Limoges, Limoges Cedex, France; ²LERMPS - UTBM, site de Sévenans, Belfort Cedex, France; ³Alcan CRV - URA Electrolyse et Matériaux Réfractaires, Voreppe Cedex, France; ⁴Alcan LRF, Saint-Jean-de-Maurienne, France

FRIDAY JUNE 11 MORNING

Sub-session CF-4.2 - Energy Conversion and Storage

Room: ALBA 2

Chair: K. KANAMURA, Japan

- 9.00 *CF-4.2:IL06* **Mathematical Modeling of Electrochemical Systems. Application to Li-ion Batteries Aging**
M. SAFARI^{1,2}, M. MORCRETTE¹, A. TEYSSOT², C. DELACOURT¹,
¹Laboratoire de Réactivité et Chimie des Solides, Université de Picardie Jules Verne, Amiens, France ; ²Renault Research Dept., Guyancourt, France
- 9.30 *CF-4.2:IL07* **Cathode Materials for Large-scale Lithium-ion Batteries**
A. YAMADA, Dept. of Chemical System Engineering, The University of Tokyo, Tokyo, Japan
- 10.00 *CF-4.2:L08* **YSZ Self-supported Ultrathin Membranes for μ SOFCs**
J. SANTISO^a, A. TARANCÓN^b, I. GARBAYO^b, A. CAVALLARO^a, J. ROQUETA^a, G. GARCIA^c, I. GRÀCIA^b, C. CANÉ^b, N. SABATÉ^b, ^aCIN2, Research Center for Nanoscience and Nanotechnology, CSIC-ICN, Bellaterra, Barcelona, Spain; ^bCNM-IMB (CSIC), National Institute of Microelectronics, CSIC, Bellaterra, Barcelona, Spain; ^cGFMI, Dept. of Physics, Autonomous University of Barcelona, Bellaterra, Barcelona, Spain
- 10.20 *CF-4.2:L09* **Thick Film and Multilayer Ceramic Technology for Innovative Fuel Cell Systems**
A. MICHAELIS, Fraunhofer Institute for Ceramic Technologies and Systems, IKTS, Dresden, Germany
- 10.40 *Break*

Chair: C. DELACOURT, France

- 11.10 *CF-4.2:L10* **Progress in the Development of Bulk-type All Solid State Lithium Batteries**
V. VIALLET, V. SEZNEC, M. MORCRETTE, J.M. TARASCON, LRCS UPJV, Amiens, France; G. DELAIZIR, P. ROZIER, M. DOLLE, CEMES, Toulouse, France; A. ABOULAICH, L. TORTET, R. BOUCHET, LCP, Marseille, France
- 11.30 *CF-4.2:IL11* **Three Dimensionally Ordered Composite Electrodes with Active Oxide Material and Ceramic Electrolyte for All Solid State Rechargeable Lithium Battery**
K. KANAMURA, Dept. of Applied Chemistry, Tokyo Metropolitan University, Tokyo, Japan
- 12.00 *CF-4.2:IL12* **Micro-solid Oxide Fuel Cells: From Thin Films to Power Delivering Membranes**
J.L.M. RUPP, A. BIEBERLE-HÜTTER, L.J. GAUCKLER, ETH Zurich, Zurich, Switzerland

FRIDAY JUNE 11 MORNING

Session CG-4 - Thin Films and Coatings for Tribological and Multifunctional Applications

Room: URANO

Chair: C. MURATORE, USA

- 9.00 *CG-4:IL18* **Nanostructured Thin Coating Architectures for Environmental Technology Applications**
V. TEIXEIRA, J. CARNEIRO, P. CARVALHO, University of Minho, Physics Dept., GRF-Functional Coatings Group, Guimarães, Portugal
- 9.30 *CG-4:IL19* **Computational and Experimental Investigation to Understand the Adaptation Mechanisms of Chameleon Coatings**
S.M. AOUADI, D. STONE, A. ABU-NADA, Dept. of Physics, Southern Illinois University, Carbondale, IL, USA; C. MURATORE, A.A. VOEVODIN, Air Force Research Laboratory, Materials and Manufacturing Directorate, Wright-Patterson AFB, Ohio, USA
- 10.00 *CG-4:L22* **Pros and Cons of Three Potential Easy-to-clean Coatings on Glazed Surfaces**
M. PIISPANEN, L. HUPA, Process Chemistry Centre, Abo Akademi University, Turku, Finland
- 10.20 *CG-4:IL23* **Damping Properties of Hard Coatings for Engine Applications**
P.J. TORVIK, Prof. Em., Air Force Institute of Technology, Xenia, OH, USA
- 10.50 *Break*

Chair: M. FENKER, Germany

- 11.20 *CG-4:IL24* **Correlation Between Mechanical Properties and Different Coating Architectures**
S.J. BULL, Chemical Engineering and Advanced Materials, Newcastle University, Newcastle upon Tyne, UK
- 11.50 *CG-4:IL25* **Adaptive Multifunctional Nanocomposite Coatings for Aerospace Applications**
A.A. VOEVODIN, C. MURATORE, Air Force Research Laboratory, Thermal Sciences and Materials Branch, Wright-Patterson AFB, OH, USA
- 12.20 *CG-4:L26* **Synthesis of TiO₂ Thin Films by Ink-jet Printing from Water Based Sol-gel Precursors**
M. ARIN, P. LOMMENS, I. VAN DRIESSCHE, Dept. of Inorganic and Physical Chemistry, Ghent University, Ghent, Belgium

FRIDAY JUNE 11 MORNING

Session CH-4 - Varistors and Thermistors

Room: SIRIO

Chair: H. HANEDA, Japan

- 9.15 *CH-4:IL06* **Advances in Varistor Ceramics**
F. GREUTER, ABB Corporate Research, Baden-Daettwil, Switzerland
- 9.45 *CH-4:IL07* **Origin of Stoichiometry Influence in High Performance $\text{Na}_x\text{Co}_2\text{O}_4$ -y**
SEAN LI, School of Materials Science and Eng., The University of New South Wales, Sydney, Australia
- 10.15 *CH-4:IL08* **NTC Thermistors: Past, Present and Future**
A. FETEIRA, School of Chemistry, University of Birmingham & Dept. of Physics, University of Warwick, UK
- 10.45 *Break*

Session CH-5 - Optical, Electro-optical and Magneto-optical Ceramics and Devices

Room: SIRIO

Chair: Sean LI, Australia

- 11.15 *CH-5:IL07* **Advanced Ceramics for Optical Applications**
JAN MA, School of Materials Science and Engineering and Temasek Labs, Nanyang Technological University, Singapore
- 11.45 *CH-5:L10* **Development of Highly Sensitive Techniques for Characterizing Optical Gain and Losses in Laser Ceramics**
YE HE, R. GAUME, A. MARKOSYAN, R.L. BYER, Ginzton Lab., Stanford University, Stanford, CA, USA
- 12.05 *CH-5:L11* **Magnetic and Magneto-Optical Characterization of Diluted Magnetic Colloidal Suspensions**
O. PASCU, J.M. CAICEDO, J. FONTCUBERTA, G. HERRANZ, A. ROIG, Institut de Ciencia de Materials de Barcelona (ICMAB), CSIC, Bellaterra, Spain
- 12.25 *CH-5:IL09* **Charge Transfer Transitions in 3d Transition Metals Oxides**
R.V. PISAREV, Ioffe Physical-Technical Institute, St. Petersburg, Russia

FRIDAY JUNE 11 MORNING

Room: ORSA MAGGIORE

Chair: A. BARTHELEMY, France

Session CH-6.6 - New Effects

9.00 *CH-6.6:IL05* **Magnetoelectric Multiglass Ceramics (Sr,Mn)TiO₃ and (K,Mn)TaO₃**

W. KLEEMANN, V.V. SHVARTSMAN, P. BORISOV, S. BEDANTA, Angewandte Physik, Universität Duisburg-Essen, Duisburg, Germany; A. TKACH, P.M. VILARINHO, Dept. of Ceramics and Glass Engineering, CICECO, University of Aveiro, Aveiro, Portugal

Session CH-6.7 - Devices and Applications

9.30 *CH-6.7:IL01* **Microwave Magnetoelectric Interactions in Composites and Novel Devices**

Y. FETISOV, Moscow State Institute of Radio Engineering, Electronics and Automation, Moscow, Russia; G. SRINIVASAN, Dept. of Physics, Oakland University, Rochester, MI, USA

10.00 *CH-6.7:IL02* **Multiferroic Tunnel Junctions: from Theory to Experiment**

CHUN-GANG DUAN, Key Laboratory of Polar Materials and Devices, East China Normal University, Shanghai, China

10.30 *Break*

Chair: W. KLEEMANN, Germany

11.00 *CH-6.7:IL03* **Tunneling Across a Ferroelectric Barrier: A First-principles Study**

D. BILC¹, F.D. NOVAES^{1,2}, P. ORDEJON³, J. IÑIGUEZ², P. GHOSEZ¹, ¹Physique Théorique des Matériaux, Université de Liège, Sart Tilman, Belgium; ²Institut de Ciència de los Materials de Barcelona-CSIC, Bellaterra, Spain; ³Centre d'Investigació en Nanociència i Nanotecnologia-CSIC, Bellaterra, Spain

11.30 *CH-6.7:IL04* **Sub-THz Excitations in Ferrite-ferroelectric Heterostructures**

G. SRINIVASAN, Physics Dept., Oakland University, Rochester, MI, USA

12.00 *CH-6.7:IL05* **Taking Advantage of Interface Effects to Design New Oxide Based Heterostructures for Spintronics**

A. BARTHÉLÉMY¹, M. BIBES¹, Z. SEFRIQUI³, V. GARCIA^{1,2}, O. COPIE¹, M. BASLETIC⁵, K. BOUZEHOUANE¹, S. FUSIL¹, E. JACQUET¹, D. IMHOFF⁴, L. BOCHER⁴, A. HAMZIC⁵, J. SANTAMARIA³, N. MATHUR², ¹Unité Mixte de Physique CNRS/Thales, Palaiseau, France; ²University of Cambridge, Cambridge, UK; ³GFMC, Dpto. Física Aplicada III, Universidad Complutense de Madrid, Spain; ⁴Lab. de Physique des Solides, CNRS, Université Paris-Sud, Orsay, France; ⁵Dept. of Physics, University of Zagreb, Zagreb, Croatia

12.30 *CH-6.7:IL06* **Ferroelectric Tunnel Barriers for Electronics and Spintronics**

M. BIBES, Unité Mixte de Physique CNRS/Thales, Palaiseau, France

FRIDAY JUNE 11 MORNING

Session CI-6 - Oxides with Diluted Magnetic Moments

Room: GIOVE

Chair: T. ITO, Japan

- 8.30 *CI-6:IL01 Magnetism of Dilute Oxides*
J.M.D. COEY, School of Physics and CRANN, Trinity College, Dublin, Ireland
- 9.00 *CI-6:IL02 Electric Field Control of Room Temperature Ferromagnetism in Co-doped TiO₂*
T. FUKUMURA, Inst. for Materials Research, Tohoku University, Sendai, Japan
- 9.30 *CI-6:IL03 Spin Manipulation in Co-doped ZnO*
H. SCHMIDT, Forschungszentrum Dresden-Rossendorf e.V., Dresden, Germany
- 10.00 *CI-6:L04 A Structural and Magnetic Study of the Hydrogen Mediated Spin Ordering in ZnCoO*
SE-YOUNG JEONG, SEUNGHUN LEE, WON-KYUNG KIM, Dept. of Cogno-Mechatronics Engineering, Pusan National University, Miryang, Korea; YONG CHAN CHO, SU JAE KIM, Team of Nano Fusion Technology, Pusan National University; SUNGKYUN PARK, Dept. of Physics, Pusan National University; IL KYOUNG JEONG, CHUL HONG PARK, Dept. of Physics Education, Pusan National University, Korea
- 10.20 *Break*

Session CI-8 - Quantum Phase Transitions and Magnetism in Oxides

Room: GIOVE

Chair: N.L. SAINI, Italy

- 10.50 *CI-8:IL01 Quantum Criticality in Low Dimensional Oxides*
T. GIAMARCHI, University of Geneva, Geneva, Switzerland
- 11.20 *CI-8:IL04 Novel Behaviour Near Quantum Phase Transitions and Beyond*
S.S. SAXENA, Cavendish Laboratory, University of Cambridge, Cambridge, UK
- 11.50 *CI-8:IL05 Universality Classes for Coulomb-frustrated Phase Separation. From Incommensurate Charge Density Wave to Stripes*
C. DI CASTRO, Dipartimento di Fisica, Università "La Sapienza", Roma, Italy
- 12.20 *CI-8:IL06 Quantum Critical Fluctuations in the Frustrated Kondo Lattice Pr₂Ir₂O₇*
M. BRANDO, J.G. DONATH, F. STEGLICH, Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; P. GEGENWART, I Institute of Physics, University of Gottingen, Gottingen, Germany; S. NAKATSUJI, Institute for Solid State Physics, University of Tokyo, Tokyo, Japan

FRIDAY JUNE 11 MORNING

Session CJ-3 - Nanotechnology and Advanced Solutions in Silicate Ceramics

Room: **SMERALDO 1**

Chair: R. CLOOTS, Belgium

- 9.00 *CJ-3:IL05* **Nano-sized Coatings Modification Applied in Microfiltration Membrane Technology**
JIAN-ER ZHOU, QIBING CHANG, YONGQING WANG, XUEBING HU, XIAOZHEN ZHANG, Jingdezhen Ceramic Institute, Jingdezhen, P.R. China
- 9.30 *CJ-3:IL06* **Nanostructured Glassy and Ceramic Surfaces: Development of "Active" Materials for an Innovative Approach to Building Industry**
G. BALDI, A. CIONI, V. DAMI, Colorobbia Italia, Soligliana-Vinci (FI), Italy
- 10.00 *CJ-3:L07* **Effect of Nanosized TiO₂ on Nucleation and Growth of Cristobalite in Sintered Fused Silica Cores for Investment Casting**
G. CASARANO, A. LICCIULLI, Università del Salento, Dipartimento Ingegneria dell'Innovazione, Lecce, Italy; A. CHIECHI, D. DISO, Salentec Advanced Technologies, Cavallino (LE), Italy; P. BENE, D. BARDARO, Centro di Progettazione Design e Tecnologie dei Materiali, Brindisi, Italy; M. DI FOGGIA, Europea Microfusioni Aerospaziali Spa, Morra de Sanctis (AV), Italy
- 10.20 *CJ-3:L08* **New Low Temperature Routes For the Preparation of Strontium Orthosilicate Using High Surface Area Mesostructured Silica**
J.L. SOARES, F.M. VICHI, Institute of Chemistry, University of Sao Paulo, Sao Paulo, Brazil
- 10.40 *Break*

Session CJ-4 - Decoration, Colour and Design of Silicate Ceramics

Room: **SMERALDO 1**

Chair: A. MORENO BERTO, Spain

- 11.10 *CJ-4:IL04* **Development of New Ceramic Dyes**
G. MONROS, Dpt. Quimica Inorganica i Organica, Universitat Jaume I, Castellon, Spain
- 11.40 *CJ-4:IL05* **New nMetal-sepiolite Bioactive Nanocomposites as a Special Effects Pigments (Colors and Shining) for Decoration of Ceramic Tiles**
J.S. MOYA, ICMM-CSIC Cantoblanco, Madrid, Spain
- 12.10 *CJ-4:IL06* **Novel Ceramic Pigments Based on Industrial Wastes**
W. HAJJAJI¹, G. COSTA², M.J. RIBEIRO², M.P. SEABRA¹, J.A. LABRINCHA¹, ¹Ceramics and Glass Eng. Dept., CICECO, University of Aveiro, Aveiro, Portugal; ²ESTG, Polytechnic Institute of Viana do Castelo, Viana do Castelo, Portugal

FRIDAY JUNE 11 MORNING

Session CK-3 - Industrialization & Application

Room: **SMERALDO 3**

Chair: M. WEIL, Germany

- 9.00 *CK-1:IL09* **Recent Development of Magnesium-based Cements - Magnesium Phosphate Cement and Magnesium Oxychloride Cement**
ZONGJIN LI, FEI QIAO, C.K. CHAU, Dept. of Civil and Environmental Eng., The Hong Kong University of Science and Technology, Hong Kong, China
(rescheduled time as for Author request)
- 9.30 *CK-3:IL01* **Medium to Long Term Engineering Properties and Performance of High-strength Geopolymer Concrete Systems**
K. SAGOE-CRENTSIL, CSIRO Materials Science and Engineering, Highett, Victoria, Australia
- 10.00 *CK-3:IL02* **Geopolymers in Conservation of Stone Monuments and Buildings**
A. TEIXEIRA-PINTO, Universidade de Tras-os-Montes e Aldo Douro, Vila Real, Portugal
- 10.30 *CK-3:L03* **Use of Local Raw Materials for Construction Purposes**
H. RAHIER, M. ESAIFAN, J. WASTIELS, Vrije Universiteit Brussel, Brussels, Belgium; I. ALDABSHEH, F. SLATYI, M. ALSHAAER, H. KHOURY, Materials Research Laboratory, University of Jordan, Amman, Jordan
- 10.50 *Break*
- Chair: A. TEIXEIRA-PINTO, Portugal
- 11.20 *CK-3:L05* **Development of Building Materials Through Alkaline Activation of Construction and Demolition Waste (CDW)**
J.G. RAPAZOTE, C. LAGINHAS, A. TEIXEIRA-PINTO, Universidade de Trás-os-Montes e Alto Douro, Dpto de Engenharias, Vila Real, Portugal
- 11.40 *CK-3:L08* **Geopolymers as Waste Encapsulation Materials: Impact of Anions on the Materials Properties**
F. FRIZON, D. LAMBERTIN, Atomic Energy Commission, DEN, Marcoule, Waste Treatment and Conditioning Research Dept., Bagnols-sur-Cèze, France
- 12.00 *CK-3:L09* **Bond Strength of Geopolymers Concrete with Reinforcing Steel**
P.K. SARKER, R. VASILE, Dept. of Civil Engineering, Curtin University of Technology, Perth, Australia
- 12.20 *CK-3:L10* **Metal Ion Exchanged Geopolymers and Their Applications**
O. BORTNOVSKY, P. BEZUCHA, Research Institute of Inorganic Chemistry, Usti nad Labem, Czech Republic; P. SAZAMA, Z. SOBALIK, Z. TVARUZKOVA, **J. DEDECEK**, J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic

Session CM-5 - R&D Advances in Devices and Applications

Room: **SMERALDO 2**

Chair: K. NIIHARA, Japan

- 8.50 *CM-5:IL01* **Design of Biomolecule-nanoparticle Complexes for Highly Sensitive Biological Detection**
CHUNHAI FAN, Shanghai Institute of Applied Physics, CAS, Shanghai, China
- 9.20 *CM-5:IL02* **Development of Carbon Nanotube Alumina Composite and Their Application to Industrial Production**
M. OMORI, G. YAMAMOTO, T. HASHIDA, Graduate School of Engineering, Tohoku University, Sendai, Japan; A. OKUBO, H. KIMURA, Institute for Materials Research, Tohoku University, Sendai, Japan
- 9.50 *CM-5:L03* **The Ballistic Impact Characteristics of Woven Fabrics Impregnated with a Colloidal Suspension and Flattened Rolls**
CHUN-GON KIM, IL-JIN KIM, GUN LIM, Dept. of Aerospace Engineering, KAIST, Daejeon, Korea; Byung-il YOON, Agency for Defense Development, Daejeon, Korea
- 10.10 *CM-5:IL04* **Design of Nanostructured Sol-Gel Coatings for Targeted Applications**
E. SCOLAN, R. PUGIN, S. PASCHE, B. WENGER, G. VOIRIN, Centre Suisse d'Electronique et Microtechnique SA, Neuchâtel, Switzerland

10.40 *Break*

Chair: CHUNHAI FAN, China

- 11.10 *CM-5:IL06* **Environmental Applications of Photocatalysis**
J.C. YU, Dept. of Chemistry and Environmental Science Programme, The Chinese University of Hong Kong, Shatin, New Territories, Hong Kong, China
- 11.40 *CM-5:IL08* **Preparing of Nano MLCC Powders for Ultrathin-layer BME-MLCC Application**
X.H. WANG, Y.C. ZHANG, L.T. LI, State Key Laboratory of New Ceramics and Fine Processing, Dept. of Materials Science and Engineering, Tsinghua University, Beijing, China
- 12.10 *CM-5:IL09* **A ZnO Nanorod Homo Junction Light-Emitting Diode**
X.W. SUN, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore

FRIDAY JUNE 11 MORNING

Session CN-5 - Composites for Thermal Management

Room: **AMBRA**

Chair: T. ISHIKAWA, Japan

- 8.40 **CN-5:IL05 Atomistic Scale Thermal Transport in Composites and Its Interfaces**
AJIT K. ROY, Air Force Research Lab., Materials and Manufacturing Directorate Thermal Sciences and Materials Branch (AFRL/RXBT), Wright-Patterson AFB, OH, USA
- 9.10 **CN-5:IL06 Design Aspects and Requirements of Ceramic Matrix Composites (CMC's) for Space Engines**
S. BEYER, S. SCHMIDT, Astrium Space Transportation, Munich, Germany; **C. WILHELMI**, EADS Innovation Works, Munich, Germany; **M. BOUCHEZ**, MBDA, Bourges, France
- 9.40 **CN-5:L07 Mechanical Properties of High Thermal Conductivity Silicon Nitride *In-Situ* Composite**
Y. ZHOU, **K. HIRAO**, **T. OHJI**, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan
- 10.00 **CN-5:L08 The Development of Alumina-based Ceramic Matrix Composites for the SHEFEX II Thermal Protection System (TPS)**
P. MECHNICH, **B. KANKA**, **M. SCHMÜCKER**, DLR Institute of Materials Research, Cologne, Germany; **B. ESSER**, DLR Institute for Aerodynamics and Flow Technology, Cologne, Germany
- 10.20 *Break*
- 10.50 **CN-1:IL03 Electrospinning of Ceramic Nanofibers**
W. SIGMUND, University of Florida, Gainesville, FL, USA, and Hanyang University
(rescheduled time as for Author request)

Session CN-6 - Applications

Room: **AMBRA**

Chair: W. KRENKEL, Germany

- 11.20 **CN-6:IL03 SA-Tyannohex-based Composites for High Temperature Applications**
T. ISHIKAWA, Ube Industries, Ltd., Ube, Japan
- 11.50 **CN-6:IL04 Modeling and Characterization of SiC/SiC Composites for Aerospace Applications**
J.A. DiCARLO, NASA Glenn Research Center, Cleveland, OH, USA
- 12.20 **CN-6:IL05 Carbon/Carbon Brake Materials**
P. FILIP, Center for Advanced Friction Studies, Southern Illinois University Carbondale, IL, USA

POSTER PRESENTATIONS

POSTER DISCUSSION

THURSDAY JUNE 10: 18.30 - 20.00

Posters desmounting:

(after the Poster Discussion Session or on June 11 morning)

SYMPOSIUM CA

CERAMIC POWDERS: SYNTHESIS, PROCESSING AND SINTERING

CA:P02 Elaboration and Mechanical Characterization of Al₂O₃-ZrO₂-YAG Ultra-fine Composites

P. PALMERO, V. NAGLIERI, G. SPINA, L. MONTANARO, Dept. of Materials Science and Chemical Engineering, Politecnico di Torino, LINCE lab., INSTM PoliTO R.U., Torino, Italy

CA:P03 Effects of Firing Temperature and Time on the Luminescency of Phosphors in Strontium Aluminate System Co-doped by Eu₂O₃ and Dy₂O₃ and Prepared by Solid State Rection Processing

S. YESILAY KAYA¹, B. KARASU², G. KAYA³, E. KARACAOGLU², ¹Anadolu University, Dept. of Glass, Eskisehir, Turkiye; ²Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkiye; ³Dumlupinar University, Dept. of Ceramic Engineering, Kutahya, Turkiye

CA:P04 Influence of Eu+3 and Dy+3 Contents on the Properties of Long Afterglow Strontium Aluminate Phosphors

S. KAYA YESILAY, Anadolu University, Dept. of Glass, Eskisehir, Turkiye; B. KARASU, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkiye; G. KAYA, Dumlupinar University, Dept. of Ceramic Engineering, Kutahya, Turkiye

CA:P05 Glycine-nitrate Synthesis of Sr Doped La₂Zr₂O₇ Pyrochlore Powder

YAN CHEN, N. ORLOVSKAYA, Dept. of Mechanical, Materials and Aerospace Engineering, University of Central Florida, Orlando, FL, USA; N. MILLER, H. ABERNATHY, D. HAYNES, D. TUCKER, R. GEMMEN, U.S. Dept. of Energy, National Energy Technology Laboratory, USA

CA:P08 Synthesis of Gadolinium Oxynitride with Cuspidine Structure and its Luminescence Properties

S. MIHARA, K. YAMAGUCHI, S. KODA, K. ITATANI, Sophia University, Tokyo, Japan; H.T. HINTZEN, A.C.A. DELSING, Eindhoven University of Technology, Eindhoven, The Netherlands

CA:P09 The Isothermal and Non-isothermal Crystallization Kinetics of La₂O₃ Doped, Sol-gel Derived Mullite

V. MANDIC, E. TKALCEC, S. KURAJICA, University of Zagreb, Faculty of Chemical Engineering and Technology, Zagreb, Croatia

CA:P10 Piezoelectric Lead Free Ceramics in the Solid Solution KNN
R. LÓPEZ, M.E. VILLAFUERTE-CASTREJÓN, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México D.F., México; F. GONZÁLEZ, Depto de Ingeniería de Procesos e Hidráulica, Universidad Autónoma Metropolitana-Iztapalapa, México D.F., México; A.M. GONZÁLEZ, Grupo Poemma, Technical University of Madrid, EUIT Telecomunicación, Madrid, Spain

CA:P11 Production of Foundry Filters Using Alumina from the Aluminum Anodizing Process

G.G. MORAES¹, B.G. OLIVEIRA², C. SILIGARDI³, D. SIGHINOLFI⁴, M.D.M. INNOCENTINI⁵, A.A. MARTINS DE OLIVEIRA Jr.¹, D. HOTZA¹, A.P. NOVAES DE OLIVEIRA¹, ¹Federal University of Santa Catarina (UFSC), Florianópolis (SC), Brazil; ²University of the Joinville Region (UNIVILLE), Joinville (SC), Brazil; ³University of Modena and Reggio Emilia (UNIMORE), Modena, Italy; ⁴Expert System Solutions S.r.l., Advanced Laboratory Equipment, Modena, Italy; ⁵University of Ribeirão Preto, São Carlos - SP, Brazil

CA:P15 On the Hydrothermal Synthesis of xCr₂O₃-(1-x)Fe₂O₃ Nanoparticle System

L. DIAMANDESCU, D. TARABASANU-MIHAILA, F. VASILIU, M. FEDER, I. MERCIONIU, T. POPESCU, National Institute of Materials Physics, Bucharest, Romania

CA:P16 Synthesis of High Purity Fine B₄C Powders via the Sol Gel Process

H. SINA EI POUR FARD, H.R. BAHARVANDI, Faculty of Materials and Manufacturing Process, MUT, Tehran, Iran

CA:P17 Preparation and Characterization of New Oxyfluoride Phases (Ba,Na)(Ti,Mg)(O,F)

D. TALANTIKITE-TOUATI, Dept. of Chemistry, Abderrahmane Mira University, Bejaia, Algeria; L. BENZIADA, Faculty of Chemistry, USTHB, El-Alia, Bab-Ezzouar, Algiers, Algeria

CA:P20 Synthesis of Scandium Oxide Nanopowders by the Sol-gel Route

N. POIROT, LEMA, UMR 6157, CNRS-CEA, IUT de Blois, Blois cedex, France; P. BOY, Laboratoire Sol Gel, CEA/Le Ripault, Monts, France; C. AUTRET-LAMBERT, LEMA, UMR 6157, CNRS-CEA, Parc Grandmont UFR Sciences, Tours, France; P. BELLEVILLE, L. BIANCHI, Laboratoire Sol Gel, CEA/Le Ripault, Monts, France

CA:P23 Description of Carbides Sintering Process using Kuczynski and Frenkel Sintering Models

A. GUBERNAT, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CA:P25 Effect of the Two-steps Sintering in the Microstructure of Ultrafine Alumina

A.S.A. CHINELATTO, M.K.MANOSSO, A.L. CHINELATTO, UEPG, Ponta Grossa, PR, Brazil; E.M.J.A. PALLONE, USP-FZEA, Pirassununga, SP, Brazil

CA:P26 Densification Study of HA-Mg Samples Synthesized with Ultrasound

D.S. GOUVEIA, A.H.A. BRESSIANI, J.C. BRESSIANI, Materials Technology and Science Center-CCTM, Institute of Energetics and Nuclear Research-IPEN, S. Paulo, SP, Brazil

CA:P27 Enhanced Densification and Grain-size Refinement in Cation-doped Tetragonal Zirconia

K. HIRAGA, H. YOSHIDA, K. MORITA, B.-N. KIM, National Institute for Materials Science, Tsukuba, Ibaraki, Japan

CA:P28 Synthesis and Sintering of Mullite Ceramics Using Microwave Heating

T. EBADZADEH, H. BARZEGAR-BAFROEI, Ceramic Division, Materials & Energy Research Centre, Tehran, Iran

CA:P29 Low-temperature Sintering of Apatite-type Lanthanum Silicate with Fluoride Additives

J. TAKAHASHI, H. HONDA, T. AKASHI, Graduate School of Engineering, Hokkaido University, Sapporo, Japan; H. ITOH, Dept. of Materials Science, Kitami Institute of Technology, Kitami, Japan; M. KISHI, Dept. of Mechanical Systems Engineering, Hokkaido Institute of Technology, Sapporo, Japan

CA:P32 Processes of Phase-formation in the Solid State Synthesis of Ferrite Garnets

T.S. LIVSHITS, IGEM RAS, Moscow, Russia

CA:P33 Alumina - Zirconia Ceramics Synthesized via Aluminum Oxidation

S.N. PARANIN, V.V. IVANOV, S.V. ZAYATS, V.R. KHRUSTOV, A.V. SPIRIN, S.Yu. IVIN, A.S. KAYGORODOV, V.I. KRUTIKOV, Yu.N. KOROLEVA, V.P. LOZNUKHO, R.D. NEVMYVAKO, Institute of Electrophysics, RAS, Ekaterinburg, Russia

CA:P34 A New Powder Filler, Obtained by Applying a New Technology for Fly Ash Inertisation Procedure

E. BONTEMPI, A. ZACCO, L. BORGESE, A. GIANONCELLI, L.E. DEPERO, Chemistry for Technologies Laboratory, University of Brescia, Brescia, Italy

CA:P35 Elastic Modulus and Hardness of CaTiO₃, CaCu₃Ti₄O₁₂ and CaTiO₃.CaCu₃Ti₄O₁₂

M.A. RAMÍREZ¹, R. PARRA², M.M. REBOREDO², J.A. VARELA¹, M.S. CASTRO², L. RAMAJO², ¹Chemistry Institute of São Paulo State University (UNESP), Araraquara, Brazil; ²Institute of Research in Material Science and Technology (INTEMA) (CONICET - University of Mar del Plata), Mar del Plata, Argentina

CA:P36 Rheology Behavior of Ytria Aqueous Suspensions for the Impregnation Method

S.C. SANTOS, C. YAMAGATA, **S.R.H. MELLO-CASTANHO**, Nuclear and Energy Research Institute-IPEN, Sao Paulo, SP, Brazil

CA:HP37 Sintering of High Density Ceramics Based on SiC Using Cold Hydrostatic Pressing

D.A. KOLESNIKOV, O.N. MARADUDINA, M.G. KOVALEVA, Joint Research Centre "Diagnostics of structure and properties of nanomaterials" at Belgorod State University, Belgorod, Russian Federation

CA:HP38 Synthesis and Characterization of Al₂O₃(matrix)-30%ZrO₂ and Al₂O₃(matrix)- 30%Y_{0.1}Zr_{0.9}O₂ Nanocomposites

V.V. SIROTA, R.A. LYUBUSHKIN, M.G. KOVALEVA, Joint Research Centre "Diagnostics of structure and properties of nanomaterials" at Belgorod State University, Belgorod, Russian Federation

CA:HP39 Homogeneous Nano-alloyed Ceramic Powders for Compacting

P. LINTUNEN, T. RITVONEN, U. KANERVA, J. LAGERBOM, T. SUHONEN, T. VARIS, O. SÖDERBERG, S-P. HANNULA, VTT, Advanced Materials, Tampere, Finland

SYMPOSIUM CB

**NOVEL ROUTES FOR CERAMICS
SYNTHESIS AND PROCESSING**

CB:P01 Silica Tube Gel Manufactured by Electrolysis

N. FURUYA, University of Yamanashi, Kofu, Japan

CB:P03 SiCN Xerogels and Ceramic Materials Derived from Polymers Containing vinyl- and Carbodiimide Functional Groups

H.J. CHENG, Y.L. LI, Key Laboratory of Advanced Ceramics and Machining Technology, Tianjin University, Ministry of Education, Tianjin, China; **E. KROKE**, M. SCHWARZ, Institute of Inorganic Chemistry, TU Bergakademie Freiberg, Freiberg, Germany; **S. HERKENHOFF**, **J. WOLTERS DORF**, Max-Planck-Institut für Mikrostrukturphysik, Halle, Germany

CB:P06 The Effect of Pulsing on the Spark Plasma Sintering of Silicon Nitride Materials

J. GONZALEZ-JULIAN, **P. MIRANZO**, **M.I. OSENDI**, **M. BELMONTE**, Institute of Ceramics and Glass (CSIC), Madrid, Spain

CB:P07 The Effects of Codoping Y2O3 on MgO Doped Spark Plasma Sintered Al2O3

B. APAK, **F.C. SAHIN**, **G. GOLLER**, **O. YUCEL**, Istanbul Technical University, Istanbul, Turkey

CB:P08 Spark Plasma Sintering of B4C-SiC Composites

H.D. GENCKAN, **F. CINAR SAHIN**, Adnan Tekin Research Center of Materials Science and Production Technologies, Istanbul Technical Univ., Istanbul, Turkey

CB:P11 Crystal Growth of Calcite Nano-plates by Alternate Soaking Method, Using CDS Single Crystal Templates

K. HAYASHI, **M. TOMOHARA**, **K. FUJINO**, **G. SAKANE**, **Y. KATAYAMA**, LSSC Okayama University of Science, Okayama, Japan

CB:P13 Highly Porous Hydroxyapatite Ceramics for Engineering Applications

H. IVANKOVIC, **S. ORLIC**, **D. KRANZELIC**, **E. TKALCEC**, University of Zagreb, Faculty of Chemical Engineering and Technology, Zagreb, Croatia

CB:P14 Aluminum Oxide Ceramics with Gradient Porosity Obtained by Commercial Starch Consolidation and Conformation

R.P. MOTA, **M.A. ALGATTI**, DFQ-UNESP, Guaratinguetá, SP, Brazil; **R.S. FERNANDES**, Universidade Federal de Alfenas, Depto de Ciencia e Tecnologia, Campus de Poços de Caldas; **E. CAMPOS**, Escola de Especialistas da Aeronáutica, Guaratinguetá, SP, Brazil

CB:P15 New Methodology in Modeling Ceramics Morphology

M.A. ALGATTI, **R.P. MOTA**, DFQ-UNESP, Guaratinguetá, SP, Brazil; **E.C. CAMPOS**, **E.E. LUCENA**, Escola de Especialistas da Aeronáutica, Guaratinguetá, SP, Brazil

CB:P17 Preparation of Porous Silicon Nitride by Sacrificial Templating

R.M. MESQUITA, **A.H.A. BRESSIANI**, **L.A. GENOVA**, Instituto de Pesquisas Energeticas e Nucleares, IPEN - CNEN, Sao Paulo, Brazil

CB:P18 Influence of Binder on Porous Ceramic Properties Prepared by the Polymeric Sponge Method

K. JACH, **D. KALINSKI**, **M. CHMIELEWSKI**, **K. PIETRZAK**, Institute of Electronic Materials Technology, Warsaw, Poland

CB:P19 Mechanical Properties of Si3N4 - SiC Composites Sintered by the HPHT Method

P. KLIMCZYK, The Institute of Advanced Manufacturing Technology, Cracow, Poland

CB:P20 Phosphate Bonded Alumina: Effect of Crystalline (AlPO4) Polymorph Phase Transformation on Mechanical Properties

P. KUMAR, **A.N. TIWARI**, **P. BHARGAVA**, Dept. of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Mumbai, India

CB:P22 Reactive Milling and Mechanical Alloying in Electroceramics

C. GOMEZ-YANEZ, I.A. VELASCO-DAVALOS, C.A. PERALTA-ZENTENO; J.J. CRUZ-RIVERA, Dept. of Metallurgy and Materials Engineering, ESIOIE, National Polytechnic Institute, Mexico city, Mexico; Faculty of Metallurgy, UASLP, San Luis Potosi, Mexico

CB:P23 Synthesis of High-Temperature Stable Anatase Titania Polymorph Through the Addition of La(III), Cu(II), Ba(II) and Sr(II)

M. MORAES LEITE¹, F. MARON VICHI¹, E. JOAQUIM DE SOUZA VICHI^{2,3},
¹Chemistry Institute, University of Sao Paulo, Sao Paulo, Brazil; ²Chemistry Institute, State University of Campinas, Campinas, Brazil; ³in memoriam

CB:P26 Microwave Synthesis of Silicon Carbide; Rapid Processing and Nanowire Formation

L. CARASSITI¹, I. MacLAREN², P. DOBSON^{3,4}, P. HARRISON⁴, D.H. GREGORY¹, ¹WestCHEM, Dept. of Chemistry; ²Dept. of Physics; ³Dept. of Electrical Engineering; ⁴Dept. of Mechanical Engineering, University of Glasgow, Glasgow, UK

CB:HP27 Spark Plasma Sintering of Boron Carbide and Effects of Various Additives on Sintering and Material Properties

YUSUF CELIK, GULTEKIN GOLLER, ONURALP YUCEL, FILIZ SAHIN FILIZ SAHIN, Istanbul Technical University, Metallurgical And Material Engineering, Istanbul, Turkey

CB-11:P02 Utilization of NbC Nanoparticles Obtained by Reactive Milling in the Production of Alumina Niobium Carbide Nanocomposites

V. TROMBINI, A.H.A. BRESSIANI, Instituto de Pesquisas Energeticas e Nucleares, Sao Paulo, SP, Brazil; E.M.J.A. PALLONE, USP, Faculdade de Zootecnia e Engenharia de Alimentos, Pirassununga, SP, Brasil; R. TOMASI, UFSCAR-DEMa Sao Carlos, SP, Brazil

CB-12:P01 Defect Crystal Structure of Low Temperature Modifications of Li₂MO₃ (M=Ti, Sn) and Related Hydroxides

N.V. TARAKINA, T.A. DENISOVA, Y.V. BAKLANOVA, L.G. MAKSIMOVA, Institute of Solid State Chemistry, Ural Branch of RAS, Ekaterinburg, Russia; R.B. NEDER, Kristallographie und Strukturphysik, Universität Erlangen, Erlangen, Germany

CB-12:P02 Layered Alumina Ceramics with Porosity Steps

E. GREGOROVA, M. CHMELICKOVA, Z. ZIVCOVA, W. PABST, ICT Prague, Prague, Czech Republic

CB-12:P03 Relationship Between Microstructure and Hardness of ZrN/TiN Multi-Layers with Various Bilayer Thickness

Y. AOI, S. FURUHATA, Ryukoku University, Otsu, Shiga, Japan; H. NAKANO, Toyohashi University of Technology, Toyohashi, Japan

CB-12:P04 Atomic and Electronic Structure of Zinc and Copper Pyrovanadates with Negative Thermal Expansion

T. KRASNENKO, N. MEDVEDEVA, V. BAMBUROV, Inst. of Solid State Chem., Urals Div. RAS, Ekaterinburg, Russia

SYMPOSIUM CC

PROGRESS IN THE UNDERSTANDING AND CONTROL OF CERAMICS SURFACES FOR TRIBOLOGY AND CORROSION

CC:P02 Performance of Blended Cement Concrete Against Seawater Attack

H.EL-DIN H. SELEEM*, A.M. RASHAD*, B.A. EL-SABBAGH**, *Building Materials Research and Quality Control Institute; **Raw Building Materials Technology and Processing Research Institute Housing & Building National Research Center, HBRC, Cairo, Egypt

CC:P03 Oxidation Resistance and Corrosion Resistance of Molybdenum-Chromium Nitride

M. NAGAE, N. ISE, H. KUWAHARA, Research Institute for Applied Science, Kyoto, Japan; J. TAKADA, Graduate School of Natural Science and Technology, Okayama University, Japan

CC:P04 Mechanical Properties of Silicon Nitride Using RUS & C-Sphere Methodology

M. HADFIELD^a, WEI WANG^a, A. WERESZCZAK^b, ^aSchool of Design, Eng. and Computing, Bournemouth University, Poole, UK; ^bMaterials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA

SYMPOSIUM CD

CERAMIC JOINING

CD:P01 Finite Element Modeling of Thermal Stress in ITER Prototype Optical Windows and its Influencing Parameters

M. JACOBS^{1,2}, G. VAN OOST¹, J. DEGRIECK¹, I. DEBAERE¹, A. GOUSSAROV², V. MASSAUT², ¹Ghent University, Ghent, Belgium; ²SCK-CEN, Mol, Belgium

CD:P02 Interfacial Microstructure and Properties of (SiC / SiC) Joint brazed with Ag-Cu-Ti Alloys

A. NEMATI, A.h. GHAZI DARYANI, A.h. KOKABI, Dept. of Material Science & Eng., Sharif University of Technology, Tehran, Iran

SYMPOSIUM CE

CERAMICS AND COMPOSITES IN EXTREME ENVIRONMENTS

CE:P01 Processing and Characterization of Zr-, Hf- and Ta- based Ultra High Temperature Ceramics

R. LICHERI, R. ORRU', C. MUSA, G. CAO, Dip. Ingegneria Chimica e Materiali, Centro Studi sulle Reazioni Autopropaganti (CESRA), Unità di Ricerca del Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali (INSTM), Unità di Ricerca del CNR - Dip. di Energia e Trasporti, Università degli Studi di Cagliari, Cagliari, Italy, IM-Innovative Materials S.r.l., Sestu, Cagliari, Italy

CE:P04 Production and Characterization Alumina-diamond Composites and Nanocomposites

E.M.J.A. PALLONE, USP, FZEA, Pirassununga, SP, Brazil; V. TROMBINI,

Instituto de Pesquisas Energéticas e Nucleares, Sao Paulo, SP, Brazil; K.L. SILVA, L.O. BERNARDI, M. YOKOYAMA, R. TOMASI, UFSCAR-DEMa Sao Carlos, SP, Brazil

CE:P05 Effects of the Pin-on-disc Test Parameters on the Wear of Alumina

N.R. TEDESCO*, E.M.J.A. PALLONE**, R. TOMASI*, *UFSCAR, Sao Carlos, SP, Brazil; **USP, FZEA, Pirassununga, SP, Brazil

CE:P08 Structure Evolution in Al₂O₃ - ZrO₂ (Y₂O₃) Ceramic Composites during Sintering

Ya. DYATLOVA, **À. OSMAKOV**, V. PESIN, V. RUMYANTSEV, VIRIAL Ltd., Saint-Petersburg, Russia

CE:P09 Fabrication of Reaction-Bonded SiC Composites by Liquid Silicon Infiltration

B.K. JANG, Y. SAKKA, Nano Ceramics Center, National Institute for Materials Science, Tsukuba, Ibaraki, Japan; S.Y. KIM, I.S. HAN, S.K. WOO, Convergence Energy Materials Research Center, Korea Institute of Energy Research, Daejeon, Korea

CE:P10 Structural Ceramics Based on Nanosized Si₃N₄ Powders

V. RUMYANTSEV, **N. KORABLEVA**, **À. OSMAKOV**, N. BELYKH, VIRIAL Ltd., Saint-Petersburg, Russia; L. STAFECKIS, Neomat Co., Salaspils, Latvia

CE:P11 Stereological Description of Microstructure of Silicon Carbide-based Structural Ceramics as a Composite Material

V. RUMYANTSEV, S. BOYKOV, **À. OSMAKOV**, VIRIAL Ltd., Saint-Petersburg, Russia; V. FISCHER, Saint-Petersburg State Technology Institute, Technical University, Saint-Petersburg, Russia

CE:P12 Consolidation of SiC Deposits by Polymer Infiltration and Pyrolysis Method

A. IVEKOVIC, K. KÖNIG, S. NOVAK, G. DRAZIC, Jozef Stefan Institute, Ljubljana, Slovenia

CE:P13 Processing and Thermal Properties of Cu-AlN Composites

M. CHMIELEWSKI, K. PIETRZAK, D. KALIŃSKI, Institute of Electronic Materials Technology, Warsaw, Poland

CE:P14 Diffusion Studies Involving Nanometric and Submicrometric Alumina Based Composites with Gray Cast Iron

K.P.S. TONELLO, V. TROMBINI, A.H.A. BRESSIANI, J.C. BRESSIANI, IPEN, Sao Paulo, SP, Brazil

CE:P15 Phase, Structural and Microstructural Changes in TiC_{1-x} - Cr₃C₂ Materials

P. RUTKOWSKI, L. STOBIERSKI, M.M. BUCKO, AGH University of Science and Technology, Faculty of Material Science and Ceramics, Krakow, Poland

CE:P16 Influence of Residual Thermal Stresses on the Properties of the NiAl Matrix Composites Reinforced with Ceramic Particles

D. KALINSKI, M. CHMIELEWSKI, K. PIETRZAK, Institute of Electronic Materials Technology, Warsaw, Poland

CE:HP17 Silicon Carbonitride/Zirconia Ceramic Nanocomposites - Synthesis and High Temperature Behavior

C. LINCK, E. IONESCU, H.-J. KLEEBE, R. RIEDEL, Technische Universität Darmstadt, Institut für Materialwissenschaft, Darmstadt, Germany

CE:HP18 Control of Electrical Conductivity of CNT Dispersed Si₃N₄ Ceramics by Double Percolation

S. YOSHIO, J. TATAMI, T. WAKIHARA, T. YAMAKAWA, K. KOMEYA, T. MEGURO, Yokohama National University, Graduate school of Environment and Information Sciences, Yokohama, Kanagawa, Japan

CE:HP19 The Influence of Microstructure on Mechanical Properties of Cr₃C₂-TiC Composites

G. GRABOWSKI, AGH - University of Science and Technology, Faculty of Materials Science and Ceramics, Department of Advanced Ceramics, Cracow, Poland

SYMPOSIUM CF
**CERAMICS FOR CHEMICAL,
ELECTROCHEMICAL AND
ENVIRONMENTAL APPLICATIONS**

CF:P01 Study of Tungsten Oxide Nanostructured Films for Gas Micro Concentrations Measurements

O.M. IVANOVA, A.E. TARASOVA, S.A. KRUTOVERTSEV, A.V. PISLYAKOV, A.V. SHEVCHENKO, JSC "Practic-NC", Zelenograd, Moscow, Russia

CF:P02 Development of Noninvasive Diagnosis with Semiconductor Sensors

S.A. KRUTOVERTSEV, M.V. CHUPRIN, O.M. IVANOVA, A.V. PISLYAKOV, A.V. SHEVCHENKO, JSC "Practic-NC", Zelenograd, Moscow, Russia; V.V. KALINOVSKY, V.V. KONOVALOV, VNIIEF, Sarov, Nizhniy Novgorod Region, Russia

CF:P03 Characterization of a Flexible Ceramic Membrane and the Effect of its Chemical Modification on the Transport of Ions

R. DE LARA¹, L. PELÁLEZ¹, D. TOLEDO¹, F.J. CASADO², J. HIERREZUELO², J.M. LÓPEZ-ROMERO², **J. BENAVENTE**¹, ¹Grupo de Caracterización Electrocinética en Membranas e Interfases. Depto Física Aplicada I, Universidad de Málaga, Málaga, Spain; ²Depto de Química Orgánica, Facultad de Ciencias, Universidad de Málaga, Málaga, Spain

CF:P04 Determination of Lead Traces by Stripping Voltammetry Using Ti(N,C) Working Electrodes

M. ZIEMNICKA, B. BAS, M. JE, L. STOBIEFSKI, Faculty of Materials Science and Ceramics, AGH University of Science and Technology, Cracow, Poland

CF:P05 Solid Oxide Electrolyte Based Oxygen Pump

A.V. SPIRIN, A.S. LIPILIN, V.V. IVANOV, S.N. PARANIN, A.V. NIKONOV, V.R. KHRUSTOV, D.S. PORTNOV, N.V. GAVRILOV, A.S. MAMAEV, Institute of Electrophysics, RAS, Ekaterinburg, Russia

CF:P06 Oxygen Permeability and Methane Conversion Rate Properties of the $LaxSr_{1-x}Ti_{1-y}Fe_yO_{3-\delta}$ Perovskite type Membrane

EUN JEONG YI, HAE JIN HWANG, Division of Material Science and Engineering, Inha University, Incheon, Korea; JI-WOONG MOON, Research Institute of Industrial Science & Technology, Pohang, Korea

CF:P07 Development of Ultrasonic-optical Fiber Hydrogen Sensor

JONG-CHUL YOO, TAI-HONG CHENG, IL-KWON OH, School of Mechanical Systems Engineering, Chonnam National University, Gwang-Ju, Korea

CF:P09 Understanding ac Response of Proton Conducting Perovskites

JONG-SOOK LEE, **YONG KIM**, EUI-CHOL SHIN, Chonnam National University, Gwangju, Korea; JONG-SUNG PARK, YU-EUN PARK, BYUNG-KOOK KIM, Korea Institute of Science and Technology, Seoul, Korea

CF:P10 Thermoelectric Properties of Sr-doped RECoO₃ (RE=Pr,Sm)

T. OHTANI, K. MINAMI, Okayama University of Science, Okayama, Japan

CF:P11 Creep and Fracture of Proton-conducting Perovskite Oxides

C. VAQUERO-AGUILAR, **M. JIMENEZ-MELENDO**, Dpto. de Física de la Materia Condensada, Universidad de Sevilla, Sevilla, Spain

CF:P13 Synthesis and Characterization of LiMnP_{1-x}V_xO₄-delta Solid Solutions

D. KELLERMAN, Inst. of Solid State Chem., Urals Div. RAS, Ekaterinburg, Russia; N. MUKHINA, V. GORSHKOV, B. TSAREV, OOO Eliont, Ekaterinburg, Russia; N. ZHURAVLEV, E. ZABOLOTSKAYA, Inst. of Solid State Chem., Urals Div. RAS, Ekaterinburg, Russia

CF:P14 Direct Synthesis of Lithium Ion Electrode Composition

V. GORSHKOV, B. TSAREV, OOO Eliont, Ekaterinburg, Russia; D. KELLERMAN, Inst. of Solid State Chem., Urals Div. RAS, Ekaterinburg, Russia

CF:P17 Production of Nano Size TiO₂ Sol and Highly Efficient Photocatalytic TiO₂ Powder by Mechanical Ball Milling

E. CORAPCI¹, B. AYSIN¹, J. PARK², A. OZTURK¹, ¹Dept. of Metallurgical and Materials Engineering, Middle East Technical University, Ankara, Turkey; ²Dept. of Materials Engineering, Atilim University, Ankara, Turkey

CF:P19 Photocatalytic Redox Reaction of Nitro Aromatics and Secondly Alcohols to Amino Aromatics and Ketones in Suspension of Titanium(IV) Oxide

K. IMAMURA, SHIN-ICHI IWASAKI, T. MAEDA, K. HASHIMOTO, H. KOMINAMI, Kinki University, Higashi-Osaka, Japan

CF:P20 Degradation of Organic Acids in Aqueous Suspensions of Gold/Cerium(IV) Oxide Powder Under Irradiation of Visible Light

A. TANAKA, K. HASHIMOTO, H. KOMINAMI, Kinki University, Higashi-Osaka, Japan

CF:P21 Correlation Between Physical Properties and Photocatalytic Activities of Metal Ion-titanium Oxide Responding to Visible Light

S. KITANO, K. HASHIMOTO, Kinki University, Higashi-Osaka, Japan

CF:P22 Preparation and Characterization of Complex Oxides for Water Photolysis

EUI-CHOL SHIN, YONG KIM, HYUN-HO SEO, JONG-SOOK LEE, School of Matls Science and Eng., Chonnam National University, Gwangju, Korea

CF:P23 Sintering by Activated Surface of Cermet Materials

T.G. RESTIVO, C. YAMAGATA, S.R.H. MELLO-CASTANHO, Nuclear and Energetic Research Institute-IPEN, Sao Paulo, SP, Brazil

CF:HP24 Photocatalytic Reduction of Nitrogen Oxides to Dinitrogen in Aqueous Suspension of Metal-loaded Titanium(IV) Oxide

HIROSHI KOMINAMI, HITOSHI GEKKO, YUMIKO SHIMADA, KEIJI HASHIMOTO, Department of Applied Chemistry, Kinki University, Higashiosaka, Osaka, Japan

SYMPOSIUM CG

CERAMIC THIN FILMS AND COATINGS FOR PROTECTIVE, TRIBOLOGICAL AND MULTIFUNCTIONAL APPLICATIONS

CG:P01 Application of SEM/STEM and XPS to Tests on Pt Distribution in Al₂O₃ Films Obtained by Oxidising FeCrAl Steel Foil Coated with Pt-Al Nanofilms

K. RESZKA, Inst. of Mechatronics, Nanotechnology and Vacuum Technique, Koszalin University of Technology, Koszalin, Poland; **J. RAKOCZY**, Inst. of Organic Chem. and Tech., Cracow University of Technology, Cracow, Poland; **J. MORGIEL**, Inst. of Metallurgy and Matls Science, PAS, Cracow, Poland

CG:P02 A Chemometric Study of Alumina/PEEK Suspension Prepared for Electrophoretic Deposition of Multifunctional Coatings

M.F. DE RICCARDIS, **V. MARTINA**, D. CARBONE, ENEA Brindisi Research Centre, Brindisi, Italy

CG:P03 ESR Study of Elements Added-DLC Films Deposited by PBI and RF-CVD Methods

N. MOOLSRADOO, H. SATO, S. WATANABE, Nippon Institute of Technology, Saitama, Japan

CG:P04 Corrosion Resistance of Titanium Aluminide Layers on Two Phase (a+b) Ti₆Al₄V Titanium Alloy

R. SITEK¹, **J. KAMINSKI¹**, **M. PISAREK²**, **H. MATYSIAK³**, **K.J. KURZYDLOWSKI¹**, ¹Faculty of Materials Science and Engineering, Warsaw University of Technology, Warsaw, Poland; ²Institute of Physical Chemistry, Polish Academy

of Sciences, Warsaw, Poland; ³Research Centre for Functional Materials, Warsaw University of Technology, Warsaw, Poland

CG:P07 Slurry Coating of Environmental Barrier Coating (EBC) on Silicon Carbide Based Material

F. BEZZI, P. FABBRI, A. BRENTARI, C. MINGAZZINI, E. BURRESI, S. SANGIORGI, ENEA, Engineering of Components and Processes Section - Faenza Research Centre, Faenza, Italy

CG:P08 Formation of an Alumina-containing Scale for the Surface Protection of TiAl Alloys and Ti Against Environmental Degradation at Elevated Temperatures

R.A. YANKOV, A. KOLITSCH, F. MUNNIK, J. VON BORANY, Institute of Ion Beam Physics and Materials Research, Forschungszentrum Dresden-Rossendorf, Dresden, Germany; A. DONCHEV, M. SCHÜTZE, Karl-Winnacker-Institut, High-Temperature Materials, DECHEMA e.V., Frankfurt am Main, Germany

CG:P09 Advances in the Field of New Smart Thermal Barrier Coatings

F. ANSART, J. FENECH, L. PIN, J.P. BONINO, P. LOURS, T. LE MAOULT, Université Paul Sabatier, Toulouse, France

CG:P10 Optimisation of the Ceramic Phase for Ceramizable Silicone Rubber Based Composites

Z. PEDZICH¹, K. HABERKO¹, D.M. BIELINSKI^{2,3}, J. DUL², ¹AGH University of Science & Technology, Dept. of Advanced Ceramics, Cracow, Poland; ²Div. of Elastomers & Rubber Technology, Inst. for Polymers & Dyes Tech., Piastow, Poland; ³Inst. of Polymers, Technical Univ. of Lodz, Lodz, Poland

CG:P11 Influence of Thermal Annealing in the Bonding States and Structural Arrangements of Multifunctional Ti(C,O,N) Coatings

C. MOURA¹, L. CUNHA¹, J.-M. CHAPPÉ², F. VAZ², M.C. MARCO DE LUCAS³, L. IMHOFF³, O. HEINTZ³, ¹Physics Dept., University of Minho, Braga, Portugal; ²Physics Dept., University of Minho, Guimarães, Portugal; ³Institut Carnot de Bourgogne, UMR 5209 CNRS-Université de Bourgogne, Dijon Cedex, France

CG:P12 Chromium Nitride and Silicon Doped Chromium Nitride Coatings Produced by Magnetron Sputtering: Effects of The Nitrogen Flow on the Structure and Mechanical Properties

L. CUNHA, C. MOURA, Physics Dept., University of Minho, Braga, Portugal

CG:P13 Study of the Films of Secondary Structures on the Interface in Sliding Friction Pairs

I.I. KURBATKIN, A.YU. ISHLINSKY, Institute for Problems in Mechanics, RAS, Moscow, Russia

CG:P14 Amorphous Si:C:H and Si:N:H as Antireflective and Protective Coatings

B. SWATOWSKA, T. STAPINSKI, S. ZIMOWSKI, AGH University of Science and Technology, Krakow, Poland

CG:P15 Influence of Inorganic Sealant in Hot and Cold Erosive Wear in Plasma Sprayed Alumina Coating

J. VICENZI, A.S. TAKIMI, R. BRAMBILLA, C.P. BERGMANN, Federal University of Rio Grande do Sul, Porto Alegre, RS, Brazil

CG:P17 Low-temperature Synthesis of TiO₂ Coatings by Sol-gel Chemistry

M. CUADRADO GIL, P. LOMMENS, I. VAN DRIESSCHE, K. DE BUYSSER, Universiteit Gent, Gent, Belgium

CG:P18 Effect of Methane Flow Rate on the Microstructural and Mechanical Properties of Silicon Carbide Thin Films Deposited by Reactive DC Magnetron Sputtering

E. BASKURT, T. TAVSANOGLU, O. YUCEL, Dept. of Metallurgical & Materials Engineering, Istanbul Technical University, Istanbul, Turkey

SYMPOSIUM CH

**ADVANCES IN ELECTRICAL, MAGNETIC
AND OPTICAL CERAMICS**

CH:P02 **Preparation and Characterization of Dielectric Behavior of A₂/3Cu₃Ti₄O₁₂ (A= Nd, Sm, Gd, Dy) Ceramics**

D. SZWAGIERCZAK, J. KULAWIK, Institute of Electron Technology, Cracow Division, Cracow, Poland

CH:P04 **Microwave Dielectric Properties of Doped Ba(Mg_{1/3}Ta_{2/3})O₃ Ceramics**

C. JINGA, E. ANDRONESCU, C. JINGA, S. JINGA, University "Politehnica" of Bucharest, Bucharest, Romania; **A. IOACHIM**, National Institute of Materials Physics, Bucharest-Magurele, Romania

CH:P10 **Polydomain Structure in PbTiO₃/PbZr_{0.2}Ti_{0.8}O₃ Superlattices**

C. HUBAULT, M.G. KARKUT, N. LEMÉE, Lab. de Physique de la Matière Condensée, Université de Picardie Jules Verne, Amiens, France; **L. DUPONT**, **K. DJELLAB**, Lab. de Réactivité et Chimie des Solides, LRCS UMR 6007, Amiens, France; **A. PERRIN**, Unité Sciences Chimiques de Rennes, UMR 6226 CNRS/Université de Rennes 1, Rennes, France; **J. HOLC**, **M. KOSEC**, Jozef Stefan Institute, Ljubljana, Slovenia

CH:P14 **Fabrication and Magnetorheological Characteristics of Hollow Fe₃O₄ Nanoparticles**

B.O. PARK, **B.J. PARK**, **H.J. CHOI**, Dept. of Polymer Science and Engineering, Inha University, Incheon, Korea

CH:P15 **Magnetic Properties and High Frequency Response of Single-Phase Z-type Strontium Cobalt Hexaferrite Prepared by Polymerizable Complex Method**

T. KIKUCHI, **T. NAKAMURA**, **T. YAMASAKI**, Graduate School of Energy, University of Hyogo, Himeji, Japan; **M. NAKANISHI**, **T. FUJII**, **J. TAKADA**, Okayama University, Okayama, Japan; **Y. IKEDA**, Research Institute of Production Development, Kyoto, Japan

CH:P16 **Effects of the Co-presence of Conflicting Magnetic Anisotropies in Ba Ferrite Particles**

G. BOTTONI, Dept. of Physics, University of Ferrara, Ferrara, Italy

CH:P17 **In-situ Measurement of Phase Transition of Layered Perovskite BaLn₂Mn₂O₇**

H. NAKANO¹, **N. ISHIZAWA**², **H. SATOH**¹, **N. KAMEGASHIRA**¹, ¹Toyohashi University of Technology, Toyohashi, Japan; ²Nagoya Institute of Technology, Japan

CH:P19 **Simplified Method of Measuring Magnetic Permeability Temperature Profile for RF Device Applications**

A. KURAMOTO¹, **T. AOYAMA**², **T. KANIE**³, **Y. NORO**¹, **T. TAKEO**¹, ¹Mie University, Tsu, Mie, Japan; ²Tokai Polytechnic College; ³Aoyama Technology, Japan

CH:HP28 **Diffuse Phase Transition and Ferroelectric Properties of Ceramic Solid Solutions in New SrTiO₃-BiScO₃ System**

O.N. IVANOV, **E.P. DANSHINA**, Joint Research Centre "Diagnostics of structure and properties of nanomaterials" at Belgorod State University, Belgorod, Russian Federation

Focused Session CH-6

MULTIFERROICS

CH-6:P02 Microstructure, Magnetic and Dielectric Properties of CoFe₂O₄-Pb(Fe_{1/2}Ta_{1/2})O₃-PbTiO₃ Composites

J. KULAWIK, P. GUZDEK, D. SZWAGIERCZAK, Institute of Electron Technology, Cracow Division, Cracow, Poland

CH-6:P04 Synthesis of Some Aurivillius Phases in the Bi-Fe-Ti-O System by Wet Chemical Methods

D. ZIENTARA, M.M. BUCKO, J. POLNAR, AGH - University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CH-6:P05 Eu_{0.5}Ba_{0.5}TiO₃ - A New Magnetoelectric Multiferroics

V. GOIAN, S. KAMBA, P. VANEK, M. SAVINOV, D. NUZHNYI, K. KNIZEK, Institute of Physics ASCR, Prague, Czech Republic; J. PROKLESKA, Charles University, Prague, Czech Republic

CH-6:P06 Magnetic Properties of Some Aurivillius Phases in the Bi-Fe-Ti-O System

M.M. BUCKO, C. KAPUSTA, AGH - University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CH-6:P07 Effects of Magnetic Ordering on Ferroelectric Polarization Switching Behavior of YMnO₃ Epitaxial Thin Film

K. MAEDA, T. YOSHIMURA, N. FUJIMURA, Graduate School of Engineering, Osaka Prefecture University, Osaka, Japan

CH-6:HP11 The Interplay of Coupled Charge, Spin and Structure in the Presence of Dynamics in Magnetoelectric EuTiO₃

L.J. SPALEK^{1,2}, S.E. ROWLEY², M. SHIMUTA³, T. KATSUFUJI³, O. PETRENKO⁴, C. MAZZOLI⁵, V. SCAGNOLI⁵, H. WALKER⁵, M. ALLIETTA⁶, M. SCAVINI⁶, S.S. SAXENA², C. PANAGOPOULOS¹⁻⁷, ¹Institute of Electronic Structure and Laser, FORTH, Greece; ²Cavendish Laboratory, University of Cambridge, UK; ³Department of Physics, Waseda University, Japan; ⁴Department of Physics, University of Warwick, UK; ⁵ESRF, France; ⁶Department of Physical Chemistry, University of Milan, Italy; ⁷Department of Physics, University of Crete, Greece

CH-6:HP12 Synthesis, Characterization, and Magnetic Properties of Multiferroic Chromates

ANNA PIMENOV¹, P. MANDAL², V. TSURKAN¹, M. HEMMIDA¹, F. MAYR¹, H.-A. KRUG VON NIDDA¹, A. LOIDL¹, ¹Experimentalphysik V, EKM, University of Augsburg, Augsburg, Germany; ²Saha Institute of Nuclear Physics, Calcutta, India

SYMPOSIUM CI

MAGNETIC AND TRANSPORT PROPERTIES OF OXIDES

CI:P02 Comprehensive Study of Mn doped-ZnO Thin Films Grown by rf Sputtering and Ion Implantation Techniques

A.G. ROLO, M.F. CERQUEIRA, F. OLIVEIRA, T. VISEU, J. AYRES DE CAMPOS, T. DE LACERDA-ARÓSO, M.I. VASILEVSKIY, Centro de Física, Universidade do Minho, Braga, Portugal; J.S. MARTINS, N.A. SOBOLEV, I3N and Dpto de Física, Universidade de Aveiro, Aveiro, Portugal; E. ALVES, ITN, Ion Beam Laboratory, Sacavém, Portugal

CI:P04 Phase Coexistence in Nano-sized (La,Ca)MnO₃ Manganites Investigated by Neutron Powder Diffraction and Magnetization Measurements

M. FERRETTI, A. MARTINELLI, CNR-INFM-LAMIA, Genova, Italy; M.R. CIMBERLE, CNR-IMEM, Genova, Italy

***CJ:P05* Multiferroic Mn-doped BaTiO₃ Thin Films**

Y. SHUAI, D. BUERGER, L. LI, S. ZHOU, M. HELM, H. SCHMIDT, Inst. of Ion Beam Physics and Materials Research, Forschungszentrum Dresden-Rossendorf, Dresden, Germany

***CJ:P08* Characterization of Mn-doped ZnO/Al₂O₃ Multilayered Nanostructures Grown by Pulsed Laser Deposition**

A. KHODOROV¹, S. LEVICHEV¹, O. KARZAZI², A. CHAHBOUN^{1, 2}, **A.G. ROLO¹**, N.P. BARRADAS³, E. ALVES³, C.J. TAVARES¹, D. EYIDI⁴, J.-P. RIVIÈRE⁴, M.F. BEAUFORT⁴, M.J.M. GOMES¹, ¹Physics Centre, University of Minho, Braga, Portugal; ²LPS, Physics Department, Faculty of Sciences, Fes, Morocco; ³ITN, Ion Beam Laboratory, Sacavém, Portugal; ⁴PhyMat, University of Poitiers, Futuroscope-Chasseneuil, France

***CJ:P09* Electron Spin Resonance of Nickelate Lanthanum**

N. POIROT, LEMA, UMR 6157 CNRS-CEA, Université François Rabelais, Tours, France; R.A. SOUZA, Swiss Light Source, Paul Scherrer Institut, Villigen PSI, Switzerland

SYMPOSIUM CJ

SCIENCE AND TECHNOLOGY FOR SILICATE CERAMICS

***CJ:P01* Almost Complete Nitridation of Mesoporous Silica to Mesoporous Silicon (Oxy)Nitride with Ammonia**

F. HAYASHI, **M. IWAMOTO**, Chemical Resources Laboratory, Tokyo Institute of Technology, Yokohama, Japan

***CJ:P02* Microstructural Evolution of Fast Firing Floor Tiles Produced by Experimental Design Method**

A. KODA, G. ARSLAN, Anadolu University, Material Science and Engineering Dept., Eskisehir, Turkey

***CJ:P03* Use of Spodumene in Porcelain Stoneware Formulations**

T. AYDIN, Dept. of Material Science and Engineering, Anadolu University, Material Science and Engineering Dept., Eskisehir, Turkey; **A. KARA**, Ceramic Research Center, Eskisehir, Turkey

***CJ:P06* Fast Firing of Glazed Tiles Containing Paper Mill Sludge and Glass Cullet**

G. TONELLO, E. FURLANI, S. MASCHIO, D. MINICHELLI, S. BRUCKNER, Università di Udine, Dipartimento Scienze e Tecnologie Chimiche, Udine, Italy; E. LUCCHINI, Università di Trieste, Dipartimento di Ingegneria dei Materiali e delle Risorse Naturali, Trieste, Italy

***CJ:P08* Influence of Clayey Material on the Sintering Behaviour of Ceramics Containing Paper Sludge and Glass Cullet**

E. FURLANI, S. MASCHIO, G. TONELLO, E. ANEGGI, D. MINICHELLI, S. BRUCKNER, Università di Udine, Dipartimento di Scienze e Tecnologie Chimiche, Udine, Italy; E. LUCCHINI, Università di Trieste, Dipartimento di Ingegneria dei Materiali e delle Risorse Naturali, Trieste, Italy

***CJ:P10* Development of Synthetic Soapstone from Natural Soapstone Powder and Debris**

C.E.S. AMORIM, M.G.A. RANIERI, R.P. MOTA, M.A. ALGATTI, FEG-DFQ-UNESP, Guaratinguetá, SP, Brazil; E. CAMPOS, Escola de Especialistas da Aeronáutica, Guaratinguetá, SP, Brazil; F.C.L. MELO, AMR/IAE/CTA, Sao José dos Campos, SP, Brazil

***CJ:P11* Determining the Chemical Composition of Glass Phases in Sanitarywares by Quantitative X-ray Diffraction Analysis**

H. SARI, S. KURAMA, Anadolu University, Department of Materials Science and Engineering, Eskisehir, Turkey

CJ:P12 Research-studies on Hard Porcelain Glazes

A. GOLEANU, S.C. Apulum S.A., Alba Julia, Romania

CJ:P14 Quantitative Infrared Thermography (IRT) and Holographic Interferometry (HI): Nondestructive Testing (NDT) for defects detection in the Silicate Ceramics Industry

S. SFARRA, D. AMBROSINI, A. PAOLETTI, D. PAOLETTI, Dept. of Mechanical, Management and Energy Eng. (DIMEG), University of L'Aquila, Loc. Monteluco di Roio (AQ), Italy; **C. IBARRA-CASTANEDO**, A. BENDADA, X. MALDAGUE, Computer Vision and Systems Lab., Dept. of Electrical and Computer Engineering, Laval University, Quebec City, Canada

CJ:P15 Visible and Infra-red Reflectance of Several Typical Japanese Glazes for Roof Tiles and Wall Tiles

T. SUGIYAMA, H. KAKIUCHIDA, M. OHASHI, National Institute of Advanced Industrial Science and Technology, Materials Research Institute for Sustainable Development, Nagoya, Japan

CJ:P16 Colour Properties of Y₂O₃-Al₂O₃-Cr₂O₃ Pigments as a Result of Precursors Morphology

E. STOBIEWSKA, M.M. BUCKO, J. LIS, **K. KUZMINSKA**, AGH - University of Science and Tech., Fac. of Materials Science and Ceramics, Cracow, Poland

CJ:P17 New Red Chromium-calcium Titanate Red Ceramic Pigment

C. GARGORI, R. GALINDO, M. LLUSAR, S. CERRO, A. GARCIA, G. MONROS, Dpt. Quimica Inorganica i Organica, Universitat Jaume I, Castellon, Spain

CJ:P18 The Effect of Ferrochromium Fly Ash as a Pigment on Wall Tile Glaze

Z. BAYER, N. AY, Anadolu University, Dept. of Materials Science and Eng., Eskisehir, Turkey

CJ:P21 Crystallisation of Gahnit in CMAS Glass Forming System. Mechanism and Kinetics of the Process

D. HERMAN, T. OKUPSKI, Koszalin University of Technology, Koszalin, Poland

CJ:HP22 Investigation of Usage of Clay with Rheological Difficulties in Wall Tile

B. TARHAN^{1,2}, N. AY¹, C. YILDIZ², ¹Anadolu University, Material Science and Eng. Dept., Eskisehir, Turkey; ²Seramiksın Turgutlu Seramik San.ve Tic.A.S., Manisa, Turkey

CJ:HP23 The Investigation of Glassy Phase Compositions for Porcelain Tile Bodies

M. TARHAN¹, F. KARA², F. AYDIN EGRI³, ¹Kutahya Seramik, Kutahya, Turkey; ²Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey; ³Yurtbay Seramik, Eskisehir, Turkey

CJ:HP24 Using Ultrasonic Test Method in Characterization of Physical and Mechanical Properties of Porcelain Tile

E. EREN, S. KURAMA, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey

CJ:HP25 Using High Power Diode Laser for Repairing Sanitary-Ware Ceramics Surface Imperfections

E. BASKUT, A. DOGAN, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey

CJ:HP26 Kinetic Study on Controlled Crystallization of a Ca₂ZnSi₂O₇ Phase in Materials Obtained from Vitrification of Metallurgical Slag and Recycled Soda Lime Glass

E.I. CEDILLO GONZÁLEZ¹, J.J. RUIZ VALDÉS^{1,2}, A. ÁLVAREZ MÉNDEZ¹, ¹Fac. de Ciencias Químicas, Univ. Autónoma de Nuevo León, Monterrey, N.L. México; ²Centro de Innovación, Investigación y Desarrollo en Ingeniería y Tecnología CIIDIT, Univ. Autónoma de Nuevo León, Apodaca, N.L., México

CJ:HP27 Reducing Pyroplastic Deformation of Sanitaryware Porcelain Bodies

D. YESIM TUNÇEL¹, M. KERIM KARA², E. ÖZEL³, ¹Anadolu University, Graduate School of Sciences, Ceramic Eng. Dept., Eskisehir, Turkey; ²Duravit Yapı Ürünleri San. ve Tic. A.Ş., Organize Deri Sanayi Bölgesi, Tuzla, İstanbul; ³Anadolu University, Dept. of Materials Science & Eng., Eskisehir, Turkey

SYMPOSIUM CK

**GEOPOLYMERS AND GEOCEMENTS: LOW
ENVIRONMENTAL IMPACT CERAMIC
MATERIALS**

CK:P01 **Formation of Tetra-coordinated Aluminum in the Low Temperature Ashes**

P. STRAKA, Institute of Rock Structure and Mechanics ASCR, v.v.i., Prague, Czech Republic

CK:P02 **Geopolymerization of Meta-kaolins with Different Morphologies**

J. DEDECEK, J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic; **V. MEDRI**, **S. FABBRI**, ISTECCNR, Faenza, Italy; **Z. SOBALIK**, **Z. TVARUZKOVA**, J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic; **A. VACCARI**, Dipartimento di Chimica Industriale e dei Materiali, University of Bologna, Bologna, Italy

CK:P05 **Chemical and Biological Characterization of Geopolymers for Potential Application as Hard Tissue Prostheses**

M. CATAURO, **F. BOLLINO**, **D. VERARDI**, Dept. of Mechanical and Aerospace Engineering, Second University of Naples, Aversa, Italy; **I. LANCELLOTTI**, **E. KAMSEU**, **C. LEONELLI**, Dept. of Materials and Environmental Engineering, University of Modena and Reggio Emilia, Modena, Italy

SYMPOSIUM CL

**REFRATORIES: RECENT
DEVELOPMENTS IN MATERIALS,
PRODUCTION AND USE**

CL:P01 **Thermal Shock Behavior of Zircon Based Refractories**

N.M. RENDTORFF, **G. SUAREZ**, **Y.L. BRUNI**, **L.B. GARRIDO**, **E.F. AGLIETTI**, CETMIC, Centro de Tecnología de Recursos Minerales y Cerámica (CONICET La Plata-CIC), **M.B. Gonnet**, Prov. de Buenos Aires, Argentina

CL:P02 **Calcium Zirconate as the Secondary Phase of Magnesia Refractories**

J. SZCZERBA, AGH - University of Science and Technology, Dept. of Ceramics, Cracow, Poland

CL:P03 **The Effect of Type of Spinel on the Thermal and Mechanical Properties of Magnesite Refractories**

A. CAKIR^{1,3}, **S. TURAN**², **A. SESVER**³, **B. ÖZDEMİR**³, ¹Anadolu University, Graduate School of Sciences, Ceramic Engineering Program A.D, Eskisehir, Turkey; ²AnadoluUniversity, Material Science and Engineering, Eskisehir, Turkey; ³Kütahya Magnesite Company, Kütahya, Turkey

CL:P04 **Corrosion of an Alumina Refractory by Potassium Salts Refractory in High Temperature Combustion Environments**

NA LI, **L. HUPA**, **P.YRJAS**, **M. HUPA**, Process Chemistry Centre, Åbo Akademi University, Turku, Finland

CL:HP05 **Alumina-Mullite Refractories: Prototypal Components Production for Thermal Shock Tests**

A. BRENTARI^{*}, **M. LABANTI**, **F. MAZZANTI**, **C. MINGAZZINI**, **S. SANGIORGI**, **M. VILLA**, ENEA, Engineering of Components and Processes Section, Faenza Research Centre, Faenza, Italy; **S. MARTELLI**, **D. OLEVANO**, Centro Sviluppo Materiali S.p.A., Rome, Italy

CL:HP06 **New Materials for Ceramic Tile Bodies**

GÜLFEM BYNAL, NURAN AY, Anadolu University, Department of Materials Science and Engineering, Eskisehir, Turkey

CL:HP07 **Examination of Microstructural Characteristics and Mechanical Properties of MgO-MgAl₂O₄ Composite Refractories with the Addition of ZrO₂-Y₂O₃**

TUBA AKSOY, CEMAIL AKSEL, Anadolu University, Department of Materials Science and Engineering, Eskisehir, Turkey

CM - 2nd International Conference

DISCLOSING MATERIALS AT NANOSCALE

CM:P01 **Room Temperature Fabrication of Highly Crystallized ZnO Thin Films on Polymer Substrates by using Nanosheet Seed Layer**

T. SHIBATA, T. OHNISHI, I. SAKAGUCHI, M. OSADA, K. TAKADA, T. SASAKI, NIMS & JST-CREST, Tsukuba, Ibaraki, Japan; T. KOGURE, The University of Tokyo, Tokyo, Japan

CM:P03 **Preparation of PVA/Sm₂O₃ Composites Nanofibers by Electrospinning Technique**

P. FRONTERA, C. BUSACCA, V. MODAFFERI, P.L. ANTONUCCI, Dip. Meccanica e Materiali, Università Mediterranea di Reggio Calabria; M. LOFARO, CNR-ITAE Institute, Messina, Italy

CM:P05 **Growth Kinetics of Nanowires in Glass-ceramic with Rare Earths for Optical Data Storage**

S. JINGA, E. ANDRONESCU, C. JINGA, Dept. of Science and Engineering of Oxide Materials, Politehnica University, Bucharest, Romania; E. ROTIU, L. IONESCU, C. MAZILU, National Glass Institute, Bucharest, Romania; E. PAVEL, Storex Technologies, Bucharest, Romania

CM:P06 **Irradiation of a Nanocomposite of Pseudoboehmite-nylon 6,12**

A.H. MUNHOZ Jr.¹, R. MENEGHETTI PERES¹, L.H. SILVEIRA¹, L.G. ANDRADE E SILVA², L.F. DE MIRANDA¹, ¹Universidade Presbiteriana Mackenzie, Sao Paulo, SP, Brasil; ²Instituto de Pesquisas Energeticas e Nucleares - IPEN

CM:P07 **Synthesis of Photocatalytically Active Titania Nanoparticles**

O. MASHTALIR, S. POGULAY, M. VEROVCHUK, **A. GOGOTSI**, Materials Research Center, Kiev, Ukraine; M. KURTOGLU, I. KNOCKE, Y. GOGOTSI, Drexel University, Philadelphia, PA, USA

CM:P08 **Preparation of Perovskite-Type Niobate Nanosheets Having a Variable Thickness Composed of (NbO₆)_n Octahedron (n=4-6)**

Y. EBINA, K. AKATSUKA, T. SASAKI, National Institute for Materials Science, Tsukuba, Japan

CM:HP09 **Nanotoxicity of CdTe quantum dots**

YUANYUAN SU, MEI HU, CHUNHAI FAN, YAO HE, QINGNUAN LI, WENXIN LI, **QING HUANG**, Shanghai Institute of Applied Physics, CAS, Shanghai, China

CM:HP10 **Nanoscale Smart Materials Fabrication and Integration in Novel MEMS Structures**

I. AULIKA, M. CERRATO, M. CREPALDI, D. DA PRÀ, D. DE MARCHI, A. DI MONTE, M. PIZZI, P. CIVERA, Fondazione Istituto Italiano di Tecnologia, Genova, Italy

CN - 6th International Conference
**ADVANCED INORGANIC FIBRE
COMPOSITES FOR STRUCTURAL AND
THERMAL MANAGEMENT APPLICATIONS**

CN:P01 **Application of Fibre Produced by Plasma Spray Method in Cementitious Composition**

R. DICKUVIENE, K.BRINKIENE, J.CESNIENE, R. KEZELIS, Lithuanian Energy Institute, Kaunas, Lithuania

CN:P02 **Irradiation of a Polypropylene-glass Fiber Composite**

L.H. SILVEIRA¹, L.G. ANDRADE E SILVA², **L.F. MIRANDA**¹, ¹Universidade Presbiteriana Mackenzie, São Paulo, SP, Brazil; ²Instituto de Pesquisas Energéticas e Nucleares (IPEN/CNEN-SP), Brazil

CN:P03 **Numerical Modelling of SiC-Matrix Composite Production by Liquid Silicon Infiltration Process**

A.V. KULIK, V.I. KULIK, YU.V. ZAGASHVILI, Baltic State Technical University, St.Petersburg, Russia; M.S. RAMM, S.E. DEMIN, Reseach-and-production company "Ceracom" Ltd, St.Petersburg, Russia

CN:P04 **Effect of Surface-modified Si-Al-C[®] Fibre Addition on Mechanical Properties of Silicon Carbide Composite**

H. MORIYASU, J. KITA, H. SUEMASU, S. KODA, K. ITATANI, Sophia University, Tokyo, Japan; I.J. DAVIES, Curtin University of Technology, Perth, Australia

CN:P06 **Study of Tribotechnical Properties of Cf/SiC-Composites in Combination with Different Riders**

V.I. KULIK, Baltic State Technical University, St.Petersburg, Russia; A.S. NILOV, S.E. RYABIKOV, L.I. SOLOV'EV, Reseach-and-production company "Ceracom" Ltd, St.Petersburg, Russia; A.P. GARSHIN, St.Petersburg State Polytechnical University, St.Petersburg, Russia; V.V. SAVICH, N.A. SHIPITSA, A.PH. ILYUSCHENKO, A.A. DMITROVICH, Powder metallurgy institute, Minsk, Republic of Belarus

Social Programme

Opening Concert "Nuovo Teatro Verdi" Montecatini Terme

Monday June 7
21.30 - 23.30

The Opening Concert of CIMTEC 2010 will be performed by the "Strauss Konzert Orchestra" of Sophia, Bulgarie, at the "Nuovo Teatro Verdi" of Montecatini Terme. The Orchestra is composed by about sixty players selected from the three main orchestras of the Bulgarian Capital, i.e. the Rundfunksorchester, the Staatsoper Orchestra -well known for its cooperation with Herbert Von Karajan- and the Sophia Philharmonic Orchestra.

The Opening Concert of the Ceramics Congress "*Opera Gran Galà*" will be held on Monday June 7 evening (21.30-23.30).

The programme will include pieces by: G. Bizet, G. Puccini, G. Verdi, P. Wagner, G. Rossini, W.A. Mozart, F. Lehar. Soprano: Silvia Pacini; Basso: Roberto Lorenzi; Tenori: Riccardo Buoncristiani e Nicola Mugnaini; Director Maestro Andrea Colombini.



Entrance ticket for non-registered companions: 25.00 EURO (subjected to place availability)

Tour to FIRENZE (FLORENCE)

THE CITY CENTER

Wednesday June 9

14.45 - 19.30

Visit to the City Center. An unrivalled itinerary of art and culture in the heart of Florence, Cathedral (Santa Maria del Fiore), with its Cupola by Brunelleschi, the Campanile (Bell Tower) by Giotto, and the Baptistery with the famous Gates of Paradise by Ghiberti and Andrea Pisano, Piazza della Signoria dominated by imposing Palazzo della Signoria flanked by the Loggia of Lanzi and the beautiful Neptune Fountain, Ponte Vecchio, the Uffizi Gallery, etc.



Meeting point: Montecatini Terme Central Railway Station (Piazza Italia) at 14.45. The participation fee for not registered companions (subjected to place availability) is 20 EURO and includes transportation, English speaking hostess and local guide. Departure from Florence: Santa Maria Novella Railway Station at about 19.00. Return to Montecatini Terme at about 20.20.

Tour to PISA

Friday June 11

14.45 - 19.30

Shown is one of the loveliest architectural complexes in the world. On a large smooth lawn stands the Cathedral, the Baptistery and the famous Leaning Tower, a unique group of buildings in an unrivaled setting, the legacy of a past age which now belongs to all mankind. Along the southern side



of the piazza lie the buildings of the old University, center of research and thought and famous for scientific disciplines.

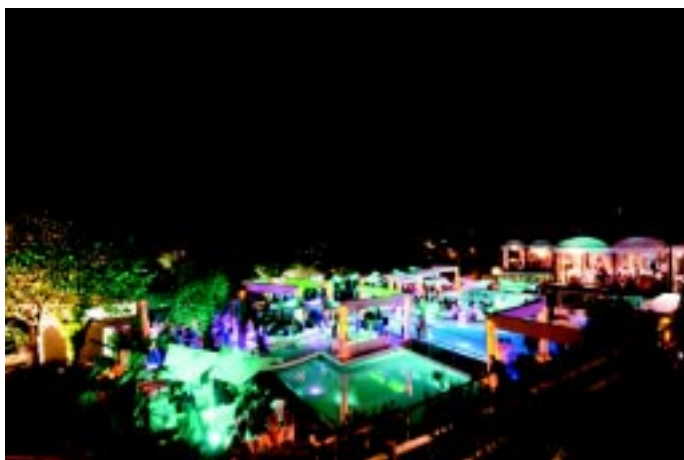
Meeting point: main entrance of the Palazzo dei Congressi at 14.45. The participation fee for not registered companions (subjected to place availability) is 25 EURO and includes transportation, English speaking hostess and local guide. Return to Montecatini Terme at about 19.30.

Conference Dinner

"Lidò Le Panteraie"

Friday June 11

21.00 - 23.30



Entrance ticket for non-registered companions: 40.00 EURO (subjected to place availability)

Optional Tours

VOLTERRA

Monday June 7, afternoon

14.30 - 19.30



The “magic and mysterious” city of Volterra has its roots in three thousand years of history. It is possible to find evidence and traces from every historical period which gives the city a unique aspect.

The ancient city walls, the imposing Porta all’Arco, the Necropolis of Marmini and the numerous archeological finds conserved in the Museo Etrusco Guarnacci bear testimony of the Etruscan period.

The Theatre of Vallebona survives from the period of Augustus and suggests the importance of Volterra under Roman domination.



Today the city conserves above all a Medieval aspect not only for the 12th century city walls but also because of the urban layout with narrow streets, palaces, tower houses and churches.

The Renaissance had an important influence on Volterra but without changing the city’s Medieval character. From this period are the superb palaces of Minucci Solaini, Incontri-Viti and Inghirami, which are built into the Medieval city, the imposing Fortezza Medicea and the Convent of San Girolamo.

Meeting point: entrance of the “Palazzo dei Congressi” at 14.30. Return to Montecatini Terme at about 19.30.

The participation fee (30 EURO) includes transportation, city entrance tax, English speaking hostess and local guide.

SIENA - SAN GIMIGNANO

Tuesday June 8, full day

9.00 - 19.30

Takes you through one of the most attractive landscapes of Central Italy, with wooded hills and valleys and the renowned Chianti area, famous throughout the world for its high-quality wines. Siena is a



treasure of history and art with its rich School of Sienese

Painting, its marvellous Cathedral, the Palazzo Comunale rising majestically from the lovely fan-shaped Piazza del Campo, the Tower of Mangia, San Domenico, Piazza Salimbeni, Palazzo Ghigi, Piazza del Capitano, etc. It will leave unforgettable memories.

In the afternoon, visit to S. Gimignano, a small town famous for its numerous towers. It is a real gem of Medieval architecture which takes you back to the time of great battles and romantic love stories, as described by minstrels' tales.



Meeting point: entrance of the "Palazzo dei Congressi" at 9.00. Return to Montecatini Terme at about 19.30.

The participation fee (65 EURO) includes transportation, cities entrance taxes, English speaking hostess, local guides and lunch.

FIRENZE (FLORENCE)

Wednesday June 9, full day

9.00 - 19.30

In the morning, before lunch, visit to Poggio Imperiale, Piazzale Michelangelo and San Miniato Church.

In the afternoon visit to the City Center. An unrivalled itinerary of art and culture in the heart of Florence, Cathedral (Santa Maria del Fiore), with its Cupola by Brunelleschi, the Campanile (Bell Tower) by Giotto, and the Baptistry with the famous Gates of Paradise by Ghiberti and



Andrea Pisano, Piazza della Signoria dominated by imposing Palazzo della Signoria flanked by the Loggia of Lanzi and the beautiful Neptune Fountain, Ponte Vecchio, the Uffizi Gallery, etc.



Meeting point: entrance of the "Palazzo dei Congressi" at 9.00. Return to Montecatini Terme at about 19.30.

The participation fee (60 EURO) includes transportation, city entrance tax, English speaking hostess, local guide and lunch.

THE "CINQUE TERRE"

Thursday June 10, full day

9.00 - 19.30

The Cinque Terre are one of the most uncontaminated areas in the Mediterranean Sea. Five miles of rocky coast among two promontories, thousands of kilometres of dry-laid stone walls, five small towns castled up on stone spurs in minuscule creeks. For their history and their position, the Cinque Terre have not suffered a massive expansion. The vineyards, typical of this area, have contributed to create a unique landscape with dry-laid stone walls, winding paths, enchanting beaches between cliffs and clear waters. Not only sea,

the Cinque Terre offer beautiful footpaths with take breathing view, churches, oratories and old castles, diving, food and wines of first quality. The Cinque Terre are National Park and UNESCO protected territory since 1997. Riomaggiore, Corniglia, Manarola, Vernazza,



Monterosso are the five villages that form the Cinque Terre, suspended between sea and land on sheer cliffs upon the beautiful sea.

Meeting point: entrance of the "Palazzo dei Congressi" at 9.00. Return to Montecatini Terme at about 19.30.

The participation fee (60 EURO) includes transportation, English speaking hostess and guide, and lunch.