

SYMPOSIUM ON

**"NEW FRONTIERS IN
CHEMICAL & BIOCHEMICAL
ENGINEERING"**



PROGRAMME

26 - 27 November, 2009

CERTH, Thessaloniki – Greece

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Introductory Note

Dear *Colleagues*,

I would like to welcome you to the *Centre for Research and Technology Hellas (CERTH)* for our two-day Symposium. The present Symposium on “**New Frontiers in Chemical and Biochemical Engineering**” is organized to honor the life-long contribution of Professors *Anastasios Karabelas* and *Stavros Nychas* to Chemical Engineering in Greece.

The Symposium aims to bring together scientists and young researchers from the fields of chemical and biochemical engineering. The Symposium technical program includes invited lectures and a poster session, featuring present challenges and future opportunities in chemical and biochemical engineering. The thematic areas of the Symposium are:

- Functional Materials & Nanotechnologies
- Environmental Physical and Chemical Processes
- Sustainable Energy Challenges
- Chemical Engineering Fundamentals
- New Paradigms in Chemical / Biochemical Engineering
- Process Systems Engineering
- Biomedical Advances

Selected contributions on the above thematic topics will be submitted to “*Industrial & Engineering Chemistry Research*” Journal for review and publication in a Special Issue. All submitted manuscripts will undergo the usual peer review process by the Journal, thus, they should contain sufficiently novel research results. Therefore, we welcome the submission of original papers for the special issue of I&EC Research by all the interested authors (e.g., invited speakers, symposium participants, colleagues, former undergraduate and graduate students, friends, etc.). The online submission is expected to start on November 15th, 2009.

I would like to thank you in advance for your active participation in both events (Symposium and Special Issue).

Professor Costas Kiparissides

Chairman of the Organizing Committee

Biographical Notes

Brief Curriculum Vitae of Anastasios J. Karabelas



Born in Argos (1938) where he attended primary and secondary schools.

Specialization: Chemical Process and Equipment Design, Modeling, Multiphase Flow, Colloidal Systems, Membrane Separation Processes, Water Treatment (Desalination, Purification/Recycling), Energy (Renewable Sources)

HIGHER EDUCATION

1957 - 1962 : National Techn. University, Athens; Dipl. in Chemical Engineering
1965 - 1970 : University of Illinois, Urbana; M.S. & PhD in Chemical Engineering,
Advisor Prof. Thomas J. Hanratty

SCIENTIFIC –TECHNICAL CAREER

11/1964 - 07/1965 : *National Technical University, Athens*; Research Assistant
09/1965 - 05/1970 : *University of Illinois, Urbana, Chem. Eng. Dept*; Research Assistant
05/1970 - 07/1978 : *Shell Development Co, Westhollow Research Center, Houston, USA*; Senior Research Engineer
07/1978 - 08/2005 : *Department of Chemical Engineering, Aristotle Univ. of Thessaloniki*; Professor,
Director of Laboratory of Chemical Process and Plant Design; served as Division Head and
Department Chairman; taught several courses, supervised 116 Diploma theses, and 15 Doctoral
theses
03/1985 - Present : *Chemical Process Engineering Research Institute (CPERI)*
- Deputy Director, Scientific Committee Member (until 5/2005)
- Head of Laboratory - Natural Resources & Renewable Energies

OTHER ACTIVITIES

10/1962 - 11/1964 : Served in the Greek Army as 2nd Lieutenant of Technical Corps
12/1984 - 01/1991 : *Joint Research Centre of the European Union*, Member of the Board of Governors,
representing Greece
03/1981 - 09/2005 : *Institute of Solar Technology*, Aristotle University of Thessaloniki, Founding Member and
Member of the Board
- Member - Board of Directors:
01/1995 - 12/1997: *Center for Solid Fuels Technology and Applications – CSFTA*
07/1994 - 05/2005: *Thessaloniki Technology Park – Management & Development Corp.*
- EC Expert, 5-member Panel for Evaluation of EC Non-Nuclear Energy Programs (1991-1996)
- International Advisory Board Member, *Institute of Chemical Process Fundamentals*, Academy of Sciences of the Czech
Republic, Prague, 2004 –
- Member of Editorial Board: *Intern. Journal of Multiphase Flow, Desalination, Encyclopedia of Desalination and Water
Resources*
- R&D Planning and Management; direction of projects funded by EC, Industry, others
- Special R&D and services to industry (PPC, PFI/ΒΦΛ, Shell, Amoco-BP, Aramco, Maxit, etc)
- External Committee member, in foreign Universities, for Faculty appointment and PhD Theses
- Organization of national and international scientific events (Conferences, Symposia)
- Expert/consultant/reviewer serving intern. organizations (European Bank for Reconstruction & Development, National
Science Foundation of Netherlands, Portugal, Israel, Singapore, other)
- Member of *European Two-Phase Flow Group* and *EUROTHERM* Committee (1983 – 2005)
- Invited lecturer in conferences; lectures in post-graduate and other training courses.
- Assistance to General Secretariat of Research and Technology, Greece (various committees)

PUBLICATIONS

- Papers: in refereed scientific journals >130; in refereed conference proceedings >120
- Technical studies and final reports > 80; contributions to book chapters 3

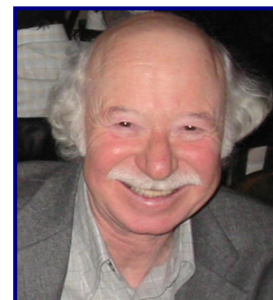
Brief Curriculum Vitae of Stavros G. Nychas

Professor Stavros G. Nychas was born in Kalivia-Attica in 1940.

He received his Diploma in Chemical Engineering from the National Technical University of Athens (1962); his M.S. from Virginia Polytechnic Institute and State University (VPI) at Blacksburg, Virginia (1968) and his Ph.D. from The Ohio State University (OSU) at Columbus Ohio (1972), all in Chemical Engineering. Service in the Greek Air Force (1962-65).

His early work included activity, as research assistant, at the Nuclear Research Center “Demokritos” of the Greek Atomic Energy Commission, in experimental solid state physics (1963-65); teaching assistant, Dept. of Chemical Engineering (VPI, 1965-66); research assistant, Engineering Experiment Station, on water stream pollution from acid mine drainage (OSU, 1966-67); teaching fellow, Dept. of Chemical Engineering (OSU, 1967-69); research associate, The Ohio State University Research Foundation, on the production of space stable thermal control coatings (1970-71, NASA); research associate, Dept. of Chemical Engineering, on wall bounded turbulent shear flows (1971-72, NSF), as a Ph.D. student of Professor Robert S. Brodkey.

In 1972 he started working at the Max-Planck-Institut für Stromungsforschung, at Gottingen in Germany, as *Wissenschaftlicher Mitarbeiter* and research on the structure and dynamics of turbulent shear flows and turbulent transport phenomena (1972-76). In October 1976 he assumed his duties as Professor of Chemical Engineering, Aristotle University of Thessaloniki until his retirement in 2007; teaching and research in the areas of transport phenomena and Chemical Engineering unit operations, contribution in organizing, building and equipping laboratories for student training and graduate research for the new Department. Research was focused on: Turbulence and mixing in wall, wake and jet flows; experimental model validation and calibration of air pollution/dispersion processes; industrial accidental releases. Fluid dynamics of combustion. Laminar / turbulent transition. Formulation, rheology, stability and atomization of coal-water suspensions; energy and environmental research related to lignite premium fuel preparation and utilization. Multiphase flows. Molecular transport in solutions. Synovial fluid rheology. Participation in several EU-funded projects contributed considerably in equipping and enriching the experimental facilities of the Laboratory of Chemical Engineering Fundamentals, A'. A continuous research cooperation was established, among others, with the following Institutions: Max-Planck-Institut für Stromungsforschung, Gottingen (1976-1988) and visiting research professor (1984-85). Ecole Nationale Supérieure de Mécanique et d'Aérotechnique (E.N.S.M.A, Poitiers, France, 1987-2004). Université Louis Pasteur, Institut de Mécanique des fluides, Strasbourg France (1990-2004) and invited professor (June/July 1993). He was also a visiting professor at the Technical University of Denmark, Dept. of Chemical Engineering, Lyngby (Sept. 1986). He has served as EUROMECH correspondent for Greece (Fluid Mechanics Section, 1977-1983). Member of the Administrative Committee for the planning and organization of the Technical University of Crete in Chania (1982-86). Member of the Scientific Programme Committee of ERCOFTAC (European Research Community on Flow Turbulence and Combustion, 1991-2004); the Laboratory of Chemical Engineering Fundamentals, A' has been one of the founding members of the ERCOFTAC Greek Pilot Center.



Sponsors

The Organizing Committee is grateful to the following organizations for their contributions to the Symposium on “New Frontiers in Chemical and Biochemical Engineering”:



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SCIENTIFIC EQUIPMENT



ANALYTICAL INSTRUMENTS S.A.
DR C.J. VAMVACAS - SCIENTIFIC EQUIPMENT

Invited Speakers

Elias Aifantis, *AUTh, Greece*

Nikolaos Anagnostou, *University of Athens & IIBEAA, Greece*

Spiros Anastasiadis, *IESL/FORTH & University of Crete, Greece*

Nikos Andritsos, *University of Thessaly, Greece*

Andreas Boudouvis, *National Technical University of Athens, Greece*

George Fytas, *IESL/FORTH & University of Crete, Greece*

Christos Georgakis, *Tufts University, USA*

Dimitris Hatzivramidis, *National Technical University of Athens, Greece*

Nicos Kalogerakis, *Technical University of Crete, Greece*

Nick Kanellopoulos, *NCSR "Demokritos", Greece*

Costas Kiparissides, *Aristotle University of Thessaloniki & CERTH, Greece*

Antonis Kokossis, *National Technical University of Athens, Greece*

Petros Koutsoukos, *University of Patras, Greece*

Angelos Lappas, *CPERI/CERTH, Greece*

Aggeliki Lemonidou, *Aristotle University of Thessaloniki & CPERI/CERTH, Greece*

Gerasimos Lyberatos, *University of Patras & ICEHT/FORTH, Greece*

Sandro Macchietto, *Imperial College London, UK*

Nikos Markatos, *National Technical University of Athens, Greece*

Thomas Melin, *RWTH Aachen University, Germany*

Yannis Missirlis, *University of Patras, Greece*

Evan Mitsoulis, *National Technical University of Athens, Greece*

Julian Morris, *Newcastle University, UK*

Costas Papaspyrides, *National Technical University of Athens, Greece*

Stratos Pistikopoulos, *Imperial College London, UK*

Michael Stoukides, *Aristotle University of Thessaloniki & CPERI/CERTH, Greece*

Doros Theodorou, *National Technical University of Athens & ICEHT/FORTH, Greece*

Kostas Tokatlidis, *IMBB-FORTH & University of Crete, Greece*

John Tsamopoulos, *University of Patras, Greece*

Constantinos Vayenas, *University of Patras, Greece*

Xenophon Verykios, *University of Patras, Greece*

Thomas Wintgens, *University of Applied Sciences Northwestern Switzerland, Switzerland*

Stergios Yiantsios, *Aristotle University of Thessaloniki & CPERI/CERTH, Greece*

Anastasia Zabaniotou, *Aristotle University of Thessaloniki, Greece*

Vassilios Zaspalis, *CPERI/CERTH, Greece*

Anastasios Zouboulis, *Aristotle University of Thessaloniki, Greece*

PROGRAMME

THURSDAY, 26 NOVEMBER, 2009

08⁰⁰ – 08³⁰ **Registration**

08³⁰ – 09⁰⁰ **Opening Session**

FUNCTIONAL MATERIALS & NANOTECHNOLOGIES (T-1)

Chairman: Spiros Anastasiadis, IESL/FORTH & University of Crete, Greece

09⁰⁰ – 09³⁰ Strong and Deaf Periodic Structures
George Fytas, IESL/FORTH & University of Crete, Greece

09³⁰ – 10⁰⁰ Molecular Modeling of Soft Matter: Meeting the Challenge of Long Time Scales
Doros Theodorou, National Technical University of Athens & ICEHT/FORTH, Greece

10⁰⁰ – 10²⁰ Development of Biomimetic Responsive Surfaces
Spiros Anastasiadis, IESL/FORTH & University of Crete, Greece

10²⁰ – 10⁴⁰ Innovative Synthesis and Characterization Methods of Carbon Nanotube Membranes and Nanoporous Materials
Nick Kanellopoulos, NCSR "Demokritos", Greece

10⁴⁰ – 11⁰⁰ Advances in Soft Magnetic Ceramics
Vassilios Zaspalis, CPERI/CERTH, Greece

11⁰⁰ – 11³⁰ **Coffee Break and Poster Session**

ENVIRONMENTAL PHYSICAL AND CHEMICAL PROCESSES (T-2)

Chairman: Petros Koutsoukos, University of Patras, Greece

11³⁰ – 12⁰⁰ The Future of Membranes in Water and Waste Water Technology
Thomas Melin, RWTH Aachen University, Germany

12⁰⁰ – 12³⁰ Crystal Growth of Sparingly Soluble Salts: Prospects for Sustainable Phosphorus Recovery from Wastewater
Petros Koutsoukos, University of Patras, Greece

12³⁰ – 12⁵⁰ Phytoremediation – A Novel Technology to Decontaminate Polluted Sites
Nicos Kalogerakis, Technical University of Crete, Greece

12⁵⁰ – 13¹⁰ Membrane Technologies for Process Integrated Environmental Protection
Thomas Wintgens, Univ. of Applied Sciences Northwestern Switzerland, Switzerland

13¹⁰ – 14³⁰ **Lunch and Poster Session**

SUSTAINABLE ENERGY CHALLENGES (T-3)

Chairman: **Angelos Lappas**, *CPERI/CERTH, Greece*

- 14³⁰ – 15⁰⁰ Sustainable Energy Challenges: Systems, Systems Everywhere
Sandro Macchieto, *Imperial College London, UK*
- 15⁰⁰ – 15³⁰ Chemical Engineering and Catalysis Issues in Future Distributed Power Generation Systems
Xenophon Verykios, *University of Patras, Greece*
- 15³⁰ – 15⁵⁰ Production of Bio-Gasoline Using Waxes Produced from a Biomass to Liquid (BtL) Process
Angelos Lappas, *CPERI/CERTH, Greece*
- 15⁵⁰ – 16¹⁰ Hydrogen Production via Steam Reforming of Methane with Simultaneous CO₂ Capture over CaO-Ca₁₂Al₁₄O₃₃
Aggeliki Lemonidou, *Aristotle University of Thessaloniki & CPERI/CERTH, Greece*
- 16¹⁰ – 16³⁰ Gasification of Biomass for Sustainable Energy Production
Anastasia Zabaniotou, *Aristotle University of Thessaloniki, Greece*
- 16³⁰ – 17⁰⁰ *Coffee Break and Poster Session*

CHEMICAL ENGINEERING FUNDAMENTALS (T-4)

Chairman: **Nikos Andritsos**, *University of Thessaly, Greece*

- 17⁰⁰ – 17²⁰ Micro-Drops and Charges: From Young to Lippmann and Beyond
Andreas Boudouvis, *National Technical University of Athens, Greece*
- 17²⁰ – 17⁴⁰ Steady Solutions and Linear Stability Analysis of the Cylindrical or Planar Stick-Slip Flow for a PTT Fluid Model
John Tsamopoulos, *University of Patras, Greece*
- 17⁴⁰ – 18⁰⁰ Effect of Fluid Properties on Flow Patterns in Two-Phase Gas-Liquid Flow in Horizontal and Downward Pipes
Nikos Andritsos, *University of Thessaly, Greece*
- 18⁰⁰ – 18²⁰ Direct Numerical Simulation of Incipient Sediment Motion and Hydraulic Conveying
Stergios Yiantsios, *Aristotle University of Thessaloniki & CPERI/CERTH, Greece*

FRIDAY, 27 NOVEMBER, 2009

PROCESS SYSTEMS ENGINEERING (F-1)

Chairman: Nikos Markatos, *National Technical University of Athens, Greece*

- 09⁰⁰ – 09³⁰ Multi-Parametric Programming and Explicit Model Predictive Control
Stratos Pistikopoulos, *Imperial College London, UK*
- 09³⁰ – 10⁰⁰ On the Systematic Use of Process Systems Technologies for the Synthesis and Design of Future Biorefineries
Antonis Kokossis, *National Technical University of Athens, Greece*
- 10⁰⁰ – 10³⁰ The Design of Dynamic Experiments: A Data-Driven Approach to Batch Optimization
Christos Georgakis, *Tufts University, USA*
- 10³⁰ – 10⁵⁰ Process Analytical Technologies (PAT) and Quality by Design – The Impact for Process Systems Engineering
Julian Morris, *Newcastle University, UK*
- 10⁵⁰ – 11¹⁰ Modern Computational Oracles in Chemical Engineering
Nikos Markatos, *National Technical University of Athens, Greece*
- 11¹⁰ – 11³⁰ *Coffee Break and Poster Session*

NEW PARADIGMS IN CHEMICAL / BIOCHEMICAL ENGINEERING (F-2)

Chairman: Michael Stoukides, *Aristotle University of Thessaloniki & CPERI/CERTH, Greece*

- 11³⁰ – 12⁰⁰ Mathematical Modeling of Energy Storage in Baryons
Constantinos Vayenas, *University of Patras, Greece*
- 12⁰⁰ – 12²⁰ Production of Gaseous Biofuels and Electricity from Cheese Whey
Gerasimos Lyberatos, *University of Patras, Greece*
- 12²⁰ – 12⁴⁰ Solid Electrolytes: Applications in Heterogeneous Catalysis and Chemical Cogeneration
Michael Stoukides, *Aristotle University of Thessaloniki & CPERI/CERTH, Greece*
- 12⁴⁰ – 13⁰⁰ Maxwell and Van der Waals in Modern Chemical and Biochemical Engineering Science
Elias Aifantis, *AUTh, Greece*
- 13⁰⁰ – 14²⁰ *Lunch and Poster Session*

NEW PARADIGMS IN CHEMICAL / BIOCHEMICAL ENGINEERING (F-3)

Chairman: Dimitris Hatzivramidis, *National Technical University of Athens, Greece*

- 14²⁰ – 14⁴⁰ Solvent-Free / Low-Temperature Polyamidation Processes
Costas Papaspyrides, *National Technical University of Athens, Greece*

14⁴⁰ – 15⁰⁰ New Frontiers in Chemical Engineering: Health, Climate Change and Energy, and Design of New Materials
Dimitris Hatzivramidis, *National Technical University of Athens, Greece*

15⁰⁰ – 15²⁰ Novel Inorganic Pre-Polymerized Composite Coagulant Reagents: Preparation, Characterization and Applications Issues
Anastasios Zouboulis, *Aristotle University of Thessaloniki, Greece*

15²⁰ – 15⁴⁰ Modeling and Simulation of Viscoelasticity with Integral Constitutive Equations
Evan Mitsoulis, *National Technical University of Athens, Greece*

15⁴⁰ – 16⁰⁰ *Coffee Break and Poster Session*

BIOMEDICAL ADVANCES (F-4)

Chairman: **Kostas Tokatlidis**, *IMBB-FORTH & University of Crete, Greece*

16⁰⁰ – 16³⁰ Translational Research of Fetal Mesenchymal Stem Cells: Pre-Clinical Applications and Perspectives
Nikolaos Anagnou, *University of Athens & IIBEAA, Greece*

16³⁰ – 16⁵⁰ Bioreactors in Tissue Engineering
Yannis Missirlis, *University of Patras, Greece*

16⁵⁰ – 17¹⁰ Improved Drug-Delivery Systems: Targeting Specific Organelles and Sub-Organellar Cellular Compartments
Kostas Tokatlidis, *IMBB-FORTH & University of Crete, Greece*

17¹⁰ – 17³⁰ Development of a Computational Model for Drug Release in the Nasal Cavity
Costas Kiparissides, *Aristotle University of Thessaloniki & CERTH, Greece*

Poster Programme

1. Synthesis and Characterization of PMMA / Organomodified Montmorillonite Nanocomposites Prepared by in situ Bulk Polymerization

Alexandros K. Nikolaidis, Dimitris S. Achilias, George P. Karayannidis
Department of Chemistry, Aristotle University of Thessaloniki

2. Nanoscale Deformation and Nanomechanical Properties of PDMS

V. Tsikourkitoudi, C.A. Charitidis
School of Chemical Engineering, National Technical University of Athens

3. Economic and energy aspects of advanced oxidation processes for olive mill wastewater treatment

Efthalia Chatzisyneon, Dionissios Mantzavinos
Department of Environmental Engineering, Technical University of Crete

4. Bioethanol Production from Pretreated Sorghum Bagasse by *Neurospora crassa*

Ioannis Dogaris, Olga Gkounta, Diomi Mamma, Emmanuel Kalogeris, Dimitris Kekos
School of Chemical Engineering, National Technical University of Athens,

5. Study of the Multiplicity Steady States in the Recycle System: Reactor – Separation Unit

S.I. Duev
Kazan state technological university, Kazan, Russia

6. Direct Borohydride Fuel Cell Using Metal-Hydride Anodes

Georgy Hristov¹, Yolina Hubenova², Mario Mitov¹
1-Department of Chemistry, South-West University, Bulgaria
2-Department of Biochemistry and Microbiology, Plovdiv University, Bulgaria

7. Improvement of Microbial Fuel Cell Output by Electrode Modifications

Yolina Hubenova¹, Rashko Rashkov², Vasil Buchvarov², Marina Arnaudova², Sofia Babanova³, Mario Mitov³
1-Department of Biochemistry and Microbiology, Plovdiv University, Bulgaria
2-Institute of Physicochemistry, Bulgarian Academy of Sciences, Bulgaria
3-Department of Chemistry, South-West University, Bulgaria

8. Monitoring Kinetics of Emulsification in Stirred Vessels by an Electric Tomography Technique

Eleni P. Kalogianni^a, Evdoxia-M. Varka^a, Margaritis Kostoglou^a, Thodoris D. Karapantsios^{a*}, Francesca Ravera^b, Libero Liggieri^b
a-Division of Chemical Technology, Department of Chemistry, Aristotle University of Thessaloniki
b-CNR - Istituto per l'Energetica e le Interfasi, Genova Genova, Italy

9 . Design of Potable Water Sedimentation Tanks by CFD Simulations

A.M. Goula, M. Kostoglou, T.D. Karapantsios and A.I. Zouboulis
School of Chemistry, Aristotle University of Thessaloniki

10 . An Emerging Paradigm in Tissue Engineering: From Chemical/Biochemical Engineering to Developmental Engineering for Bioartificial Tissue Formation Through Unit Operations, Concepts Involved and Current Limitations

Lenas Petros
Department of Biochemistry and Molecular Biology IV, University of Complutense of Madrid, Spain

11 . Hydrogen reaction (HR) at thin films based on LaNi₅ and TiB_x

Sofoklis S. Makridis^{1,2}, M. Gjoka³, Thanasis Speliotis³, Athanasios K. Stubos², & D. Niarchos³
1-Department of Mechanical Engineering, University of Western Macedonia
2-Institute of Nuclear Technology and Radiation Protection, NCSR 'Demokritos'
3-Institute of Materials Science, NCSR 'Demokritos'

12 . The Mechanism of Nucleation and Development of Nanostructure of Porous Anodic Alumina Films

G. Patermarakis and K. Moussoutzanis
School of Chemical Engineering, National Technical University

13 . Physical, chemical and electrochemical processes in a biogas fed SOFC

E. Vakouftsi¹, G. Marnellos^{1,2}, C. Athanasiou^{1,2}, F.A. Coutelieris³
1-Department of Mechanical Engineering, University of Western Macedonia
2-Chemical Process Engineering Research Institute, CERTH
3-Department of Environmental and Natural Resources Management, University of Ioannina

14 . Developing a Mesoscopic Model for a Liquid-Crystal Molecule

G. Megariotis and D. N. Theodorou
School of Chemical Engineering, National Technical University of Athens

15 . Control of anaerobic digestion processes via pH

P. Melidis, E. Vaiopoulou, A. Aivasidis
Department of Environmental Engineering, Democritus University of Thrace

16 . Atomistic Computer Simulation as a Chemical Engineering Tool: Application to the Study of Sorption and Dynamics of CH₄, H₂, D₂ and CO₂ in FAU-type Zeolites

Evangelia Pantatosaki and George K. Papadopoulos
School of Chemical Engineering, National Technical University of Athens

17 . Separation Processes and Sustainability

E. N. Peleka and K. A. Matis
School of Chemistry, Aristotle University of Thessaloniki

18 . Molecular Dynamics Study of Isotactic Polypropylene

Romanos, N.A., Theodorou, D.N.

School of Chemical Engineering, National Technical University of Athens

19 . Impact of Black Powder Contaminants on Gas Flow Measurement

Nikolaos A. Tsochatzidis

Hellenic Gas Transmission System Operator (DESFA) SA, Sidirokastro Greece

20 . Lactic Acied Based Funcnional Polymers

Seretis, A., Mantourlias, Th., Karidi, K., Parouti, S., Pladis, P. and Kiparissides C.

Aristotle University of Thessaloniki & CErTH/ CPERI

21 . Real-Time Simulation of an Industrial Scale Slurry-Loop Reactor

Touloupides, V., Kanellopoulos, V., Pladis, P., Krallis, A. and Kiparissides, C.

Aristotle University of Thessaloniki & CErTH/ CPERI

22 . Sustainable Microbial and Biocatalytic Production of Advanced Functional Materials

Chatzidoukas, C., Karidi, K., Kretza, E., Mantourlias, T., Parouti, S., Penloglou, G., Roussos, A., Seretis, A. and Kiparissides C.

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Time Schedule

<i>Thursday, 26 November</i>		<i>Friday, 27 November</i>	
08:00 - 08:30	Registration		
08:30 - 09:00	Opening Session		
09:00 - 11:00	Invited Lectures (T-1)	09:00 - 11:10	Invited Lectures (F-1)
<i>11:00 - 11:30</i>	<i>Coffee Break and Poster Session</i>	<i>11:10 - 11:30</i>	<i>Coffee Break and Poster Session</i>
11:30 - 13:10	Invited Lectures (T-2)	11:30 - 13:00	Invited Lectures (F-2)
<i>13:10 - 14:30</i>	<i>Lunch and Poster Session</i>	<i>13:00 - 14:20</i>	<i>Lunch and Poster Session</i>
14:30 - 16:30	Invited Lectures (T-3)	14:20 - 15:40	Invited Lectures (F-3)
<i>16:30 - 17:00</i>	<i>Coffee Break and Poster Session</i>	<i>15:40 - 16:00</i>	<i>Coffee Break and Poster Session</i>
17:00 - 18:20	Invited Lectures (T-4)	16:00 - 17:30	Invited Lectures (F-4)
<i>21:00 - 24:00</i>	<i>Symposium Dinner</i>		

T-1: Functional Materials & Nanotechnologies
T-2: Environmental Physical and Chemical Processes
T-3: Sustainable Energy Challenges
T-4: Chemical Engineering Fundamentals

F-1: Process Systems Engineering
F-2: New Paradigms in Chemical / Biochemical Engineering
F-3: New Paradigms in Chemical / Biochemical Engineering
F-4: Biomedical Advances