

www.euromat2007.fems.org

**European Congress on Advanced Materials and Processes** 10-13 September 2007 Nuremberg, Germany





Organising Societies: Deutsche Gesellschaft für Materialkunde Deutscher Verband für Materialforschung und -prüfung Polskie Towarzystwo Materialoznawcze





# **The Euromat Series**

Euromat meetings held every two years are sponsored by the Federation of European Materials Societies. They have become prime venues in Europe for a major gathering of academics and industrialists with an interest in Materials Science and Engineering.

The Euromat series is organised by FEMS and represents a showcase of activities within the European materials community. Previous conferences were held in the following venues:

1989: Aachen, D 1991: Cambridge, UK 1993: Paris, F 1995: Padua, I 1997: Maastricht, NL 1999: München, D 2001: Rimini, I 2003: Lausanne, CH 2005: Prague, CZ

### **Exhibition: MSE 2007**

EUROMAT 2007 will be held in conjunction with the exhibition



Materials Science and Engineering (MSE) a new exhibition concept representing the counterpart to the

huge technology oriented fairs where materials engineering only figures as a cross sectional discipline that is split among numerous product areas. MSE will demonstrate the competition of the materials classes and processes and will attach great importance to measuring devices and characterisation tools as used in research labs.

## Euromat 2007

Nürnberg, the medieval city in the north of Bavaria was the former residence of the German Emperors and venue of the early Diet Parliaments. Euromat will take place in the new congress centre that is part of the Nürnberg fair grounds situated close to the historic centre.

# **Congress Chairs**

F. Delannay, University of Louvain, Belgium (Chairman) T.W. Clyne, University of Cambridge, UK K.J. Kurzydlowski, Warsaw University of Technology, Poland P.D. Portella, Federal Institute for Materials Research and Testing, Berlin, Germany E. Zschech, AMD Saxony, Dresden, Germany S. van der Zwaag, Delft University of Technology, The Netherlands

**Congress Manager** P.P. Schepp, Deutsche Gesellschaft für Materialkunde, Frankfurt, Germany

# **FEMS Awards**

At the occasion of Euromat, FEMS presents its highest distinctions: • The European Materials Medal is awarded to an active materials scientist or engineer for distinguished contributions to Materials Science and Engineering.

• The Materials Science and Technology Prize is awarded to a young European materials scientist or engineer in recognition of a significant contribution to MST. It consists of a full set of the 20-volume WILEY-VCH book series.



### **Posters**

The newly introduced Oral Poster presentation allows poster authors to introduce their poster in a 3-minute lecture during the lecture sessions. In addition, Oral Posters will be presented at the evening Poster Sessions I or II.

The Poster Sessions will form a prominent and important part of the Euromat conference. Posters will be displayed in two sets, session I posters being up



for Monday/Tuesday and session II posters for Wednesday/Thursday. The focus of the poster system will be the evenings of Monday (session

I) and Wednesday (session II), when authors are expected to be available next to their posters.

All delegates are encouraged to view the posters and perhaps discuss their contents with the authors. Throughout these two evenings, free refreshments and snacks will be available. There will be a total of 10 Euromat Poster Prizes awarded - 5 for each session.

### Short Courses

A set of short introductory courses with topical themes will be run in conjunction with the congress, to be held on Sunday 9th September from 10:00 to 17:00 h. The venue of the Short Courses is the EUROMAT Conference Centre.

Attending a Short Course requires an extra fee. The number of participants for each course will be limited to 40. Details of the courses will shortly be published on the EUROMAT website.

# **Publications**

There will be no publication of a complete set of proceedings. However, it is anticipated that a number of journals may decide to base special issues on particular Topics or Symposia. This is up to the Topic Coordinators or Symposium Organisers.

List of committed publications (by May 07):

• Symposium B25 (Highly Porous Metals and Ceramics): 'Advanced Engineering Materials' published by Wiley-VCH

• Symposium C51 (Thin Film Technology) and Symposium C54 (Industrial Applications): 'Advanced Engineering Materials' published by Wiley-VCH

 Symposium C52 (Thick Coating Developments and Technology): 'Journal of Thermal Spray Technology' published by ASM international
 Topic X4 (Biomedical Engineering): 'Advances in Applied Ceramics: Structural, Functional and Bioceramics', Maney Publishing on behalf of the Institute of Materials, Minerals and Mining

# Programme

The preliminary programme is displayed on the website and updated regularly throughout the period prior to the congress. As a special feature, an individual programme with selected papers may be created online and will be stored until the conference.



#### Venue

The Nuremberg Congress Center (CCN) offers



excellent facilities for both congressing and exhibiting. The four levels accommodate 20 lecture halls and ample poster dis-

play areas. The exhibition area is located on the first level.

### Opening

The Opening Ceremony will take place at 18:00 h on Sunday night including the presentation of the FEMS awards. The ceremony will be highlighted by a Plenary Lecture on 'Technologies for Secure and Sustainable Energy' presented by Steve Konin, British Petroleum, UK

### **Conference Dinner**

The 'European Night' will take place on Tuesday from 19:30 h. There will be two options in parallel: A traditional Banquet in a large hall, and a Get-Together in the Biergarten of a brewery. Both events require an additional fee: Banquet: 70 EUR Get-Together: 40 EUR

The venue of the events will be given on the website.

### Lunch

Several food stations in the CCN offer snacks and beverages for sale. Lunches can also be taken in on-site restaurants. As an alternative, the two-hour break is long enough to allow lunch to be taken in the centre of Nuremberg.

### Accomodation

Blocks of rooms available at special rates have been set aside in several hotels. Details are available on the website. When reserving these rooms, the booking code 'Euromat 2007' should be used.

# Registration

Particpants should register online at www.euromat2007.fems.org The congress fees are as follows: Industry / 4 days: 740 EUR Industry / 2 days: 580 EUR University / 4 days: 520 EUR University / 2 days: 380 EUR Student / 4 days: 250 EUR

Short Courses (additional): 250 EUR

From 31 July 2007, there will be a surcharge of 50 EUR for late registration. Members of FEMS member societies are eligible for a 10% discount.

### **Ilschner Memorial**

Bernhard Ilschner, Professor at the Universities of Erlangen-Nuremberg, Germany, and Lausanne, Switzerland, died in early 2006. On Monday 10 Sept, a



special session will be held on selected lectures given by his former students, colleagues and companions. The special session will be follo-

wed by a commemoration dinner in the 'National Museum' in Nuremberg. The attendance of the special session and the dinner require registration on the website, but registration for Euromat is not presupposed.



# Topic Area A: Functional Materials

#### A1: Electronic and Photonic Materials

N. Koch, Humboldt University Berlin, D

All Fundamental Properties of Organic Semiconductors and Materials for Solid State Memories (E. Zojer, Graz University of Technology, A; T. Mikolajick, Technical University of Freiberg, D

A12 Organic Electronic Devices (N. Koch, Humboldt University Berlin, D)

A13 Molecule-based Electronics (B. de Boer, University of Groningen Netherlands; S.J. van der Molen, University of Basel, CH)

### A2: Magnetic Materials

L. Schultz, Leibniz Institute for Solid State and Materials Research, Dresden, D

**A21** Hard and Soft Magnetic Materials (I.R. Harris, The University of Birmingham, UK)

**A22** Magnetic Nanoparticles and Nanowires (B. Rellinghaus, Leibniz Institute for Solid State and Materials Research, Dresden, D)

A23 Magnetic Thin Films

(H.H. Gatzen, Leibniz University Hannover, Garbsen, D)

# A4: Materials for Nanotubes and Nanowires

C.M. Whelan, Interuniversity Microelectronics Center, Leuven, B; R. Spolenak, ETH Zurich, CH **A41** Carbon Nanotubes: Catalysis, Growth and Integration (W.I. Milne, University of Cambridge, UK) **A42** Semiconducting Nanowires: Catalysis, Growth and Integration (J.D. Holmes, University College Cork, IRE)

**A43** Materials for Nanotubes and Nanowires (P. Vereecken, IMEC, Leuven, B; S.E. Schulz, Chemnitz University of Technology, D)

# A5: Advanced Polymers

G. Wegner, Max Planck Institute for Polymer Research, D
A51 Polymer-Nanoparticle-Blends and their Applications (S. Förster, University of Hamburg, D)
A52 Polymers as Functional Electronic, Dielectric and Energy related Materials (J.K. Kallitsis, University of Patras, GR; J. Ulanski, Technical University of Lodz, PL)

# A6 Functional Ceramic

Materials and Devices M.J. Hoffmann, University of Karls-

ruhe, D A61 Dielectric and Piezoelectric Ceramics and Devices (W. Wolny, Ferroperm Piezoceramics A/S, Kvistgaard, DK; M. Kosec, Institute Josef Stefan, Ljubljana, SLO) A62 Solid Oxide Fuel Cells (E. Ivers-Tiffée, University of Karlsruhe, D; M. Mogensen, RISO National Laboratory, Roskilde, DK)

### Topic Area B: Structural Materials

#### B1: Advanced Structural Ceramics

G. Schneider, Robert Bosch Corp., Palo Alto, USA B11 Advanced Nanostructures (W.J.

Clegg, University of Cambridge, UK; P. Sajgalik, Slovak Academy of Sciences, Bratislava, SK)



**B12** Ceramic Composite Concepts (J.S. Moya, CSIC, Madrid, E; A. Bellosi, IRTEC Research Institute for Ceramics Technology, Faenza, IJ **B13** Modelling and Reliability of Ceramic Materials and Components (G.A. Schneider, Hamburg University of Technology, D; J. Kübler, Swiss Federal Laboraties for Materials Testing and Research, CHJ **B14** Bioinspired Materials and Processes (C. Zollfrank, University of Erlangen-Nuremberg, D)

# **B2:** Advanced Metallic and Hybrid Materials

T.W. Clyne, University of Cambridge, UK; J.J. Lewandowski, Case Western Reserve University, Cleveland, USA

**B21** Complex Metallic Alloys (M. Feuerbacher, Research Ćentre Juelich, D; S. Bühler-Paschen, Vienna University of Technology, A) B22 High Temperature Metallic and Intermetallic Materials (G. Eggeler, Ruhr-University Bochum, D; E. George, Metals and Ceramics Division - ORNL, Oak Ridge, USA) B23 Shape Memory and Amorphous Alloys (P. Sittner, Academy of Sciences, Prague, CZ) B24 Metal Matrix Composites (S. Barnes, University of Manchester, UK) **B25** Highly Porous Metals and Ceramics (P. Colombo, University of Padova, I; C. Körner, University of

Padova, I; C. Korner, University of Erlangen-Nuremberg, D)B3: Building Materials

F.H. Wittmann, Aedificat Institute, Freiburg, D

**B31** Micro Structure Water repellent Treatment (H. De Clercq, Royal Institute for Cultural Heritage, Brussels, B; R. van Hees, Delft University of Technology, NL) **B32** Concrete and Reinforced Concrete (H. Budelmann, Braunschweig University of Technology, D)

# **B4:** Materials for the Extreme Environment

H.-H. Bolt, Max-Planck-Institut für Plasma Physik, D

B41 Heat Sink and High Temperature Composites (F. Simancik, Slovak Academy of Sciences, Bratislava, SK; R. Martin, MERL Materials Engineering Research Laboratory Ltd., Hertford, UK)

**B42** Materials for Fusion Applications (J. Linke, Research Centre Juelich, D)

**B43** Materials for Advanced Fission Applications (N. Baluc, Swiss Federal Institute of Technology, Villigen, CH)

# Topic Area C: Processing

# **C1:** Solidification and Solid State Transformation

M. Rappaz, Swiss Federal Institute of Technology, Lausanne, CH C11 Solidification Processes, Microstructures and Defects (A. Jacot, Swiss Federal Institute of Technology, Lausanne CH; C.-A. Gandin, Ecole des Mines de Paris, F) C12 Solid State Transformations: Microstructure Formation and Evolution (E. Aeby-Gautier, Ecole des Mines, Nancy, F)

# C2: Joining

M. Ferraris, Politecnico di Torino, I **C21** Joining: Processes (J. Janczak-Rusch, Swiss Federal Laboraties for Materials Testing and Research, Dübendorf, CH; O. Dezellus, University of Lyon, Villeurbanne, F)



**C22** Joining: Mechanical Testing and Modelling (R.W. Steinbrech, Research Centre Juelich, D; Y. Vitupier, Alcatel Space, Cannes La Bocca, F)

# C3: Powder Synthesis and Processing

P. Bowen, Swiss Federal Institute of Technology, Lausanne, CH C31 Powder Synthesis - Solution Precipitation, Gas Phase and Physical Methods - Tailored Powders and Innovative Methods (P. Bowen, Swiss Federal Institute of Technology, Lausanne, CH; V. Buscaglia, National Research Council, Genova, I)

**C32** Powder Processing - from Powders to Complex Products and Innovation (J. Binner, University of Loughborough, UK; C.L. Martin, SIMAP, Saint Martin d'Hères, F)

**C33** Powder Processing - Self-assembly and Tailored Nanostructures -Towards Applications (H. Coelfen, Max Planck Institute of Colloids and Interfaces, Potsdam, D; L. Bergström, Stockholm University, S)

**C34** Nanoscaled Inorganic Materials by Molecular Design (R. Riedel, Technical University of Darmstadt, D; P. Greil, University of Erlangen-Nuremberg, D)

# C4: Extraction and Chemical Processing of Metals

G. Kaptay, University of Miskolc, Miskolc, Egyetemvaros (H) C41 Molten Salts / Advanced Aqueous Processing (D. Fray, University of Cambridge, UK; T. Kekesi, University of Miskolc, Miskolctapolca, H) C42 Ionic Liquids: New Solvents for Chemical and Electrochemical Processing (F. Endres, Technical University of Clausthal, D) **C43** Slag Metallurgy, Engineering and Valorization (B. Blanpain, Catholic University of Leuven, B)

# C5: Coatings and Surface Engineering

K. Bobzin, RWTH Aachen University, D
C51 Thin Film Technology (R. Nickel, RWTH Aachen University, D; A. Matthews, University of Sheffield, UK)
C52 Thick Coating Developments and Technology (K. Möhwald, Leibniz University Hannover, D; C. Coddet, Université de Technologie de Belfort-Montbéliard, Fl

**C53** Chemical, Electrochemical and Plasmachemical Surface Treatment and Plating (S. Steinhäuser, Chemnitz University of Technology, D;

L. Kwiatkowski, Institute of Precision Mechanics, Warsaw, PL)

C54 Industrial Applications

(K. Bobzin, RWTH Aachen University, D; M. Parco, INASMET, San Sebastian, E)

**C55** Coatings for High Temperature Applications (A. Scrivani, Turbocoating s.p.a., Rubbiano di Solignano, I)

# Topic Area D:

Characterisation and Modelling

### D1 Microstructural Characterisation Techniques

F. Mücklich, Saarland University, Saarbrücken, D

**D11** Tomography and Related 3D Techniques for Micro-/Nano Characterization (T. Baumbach, Forschungszentrum Karlsruhe, D)



**D12** Advances in Scanning Probe Microscopy and Atomic Level Imaging (M. Göken, University of Erlangen-Nuremberg, D; J. Mayer, RWTH Aachen University, D)

# D2 Mechanical Testing and Characterisation

O. Kraft, Forschungszentrum Karlsruhe GmbH, D; R.H. Dauskardt, Stanford University, USA

D21 Mechanical and Fracture Behaviour in Nanomaterials and Nano Structures (E. Zschech, AMD Saxony LLC & Co. KG, Dresden, D) D22 Mechanical Characterisation using In Situ Methods (G. Dehm, University of Leoben, A)

# D3 Materials Modelling on all Length Scales

D. Raabe, MaxPlanck-Institut für Eisenforschung GmbH, Düsseldorf, D; P. Turchi, Lawrence Livermore National Laboratory, USA

**D31** Atomistics and ab Initio Materials Modelling (M. Sob, Masarykova Univerzita, Brno, CZ)

**D32** Modelling Plasticity at Small Scales (M. Geers, Eindhoven University of Technology, NL)

D33 Process Modelling of Metallic Alloys (Y. Bréchet, University of Grenoble, Saint Martin d'Hères, F)
D34 Modelling of Materials Properties at Mesoscale (Y. Le Bouar, CNRS, Châtillon, F; A. Finel, ONERA, Châtillon, F)

# Topic Area X: Application

### X2: Materials for Transportation

R. Stauber, BMW Group, München, D, H. Voggenreiter, German Aerospace Center - DLR, Stuttgart, D **X21** Automotive Light Weight Structures (W. Staufner, DaimlerChrysler AG, Sindelfingen, D)

X22 Automotive Advanced Materials
[J. Staeves, BMW AG, Munich, D)
X23 Materials for Aerospace Structures and Propulsion (J. Telgkamp, Airbus Deutschland, Hamburg, D;
J. Eßlinger, MTU Aero Engines GmbH, Munich, D)

# X4: Biomedical Engineering

A.R. Boccaccini, Imperial College, London, UK X41 Biomedical Materials: Tissue Engineering and Drug Delivery (A.R. Boccaccini, UK; A. Tampieri, National Research Council, Faenza, IJ X42 Bioactive Materials, Surfaces and Coatings (E. Verné, Politecnico di Torino, I; K. Jandt, Friedrich Schiller

# Topic Area Y: Education

University Jena, D)

### Y1 Teaching Materials Science and Engineering

P. Goodhew, University of Liverpool, UK Y11 Teaching and Learning of Materials Science and Engineering (P. Goodhew, University of Liverpool, UK)



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The scientific programme is run in 18 parallels from Mon, 10 Sept, to Thu, 13 Sept 2007. Each day is subdivided into four sessions:

aml:	9:00 - 10:20 h
am2:	11:00 - 12:40 h
pml:	14:40 - 16:20 h
pm2:	17:00 - 18:40 h

Each box of the graph represents a session (5 lectures). The letters/numbers in the boxes refer to the symposium to which a session belongs.



# **Scientific Programme**

### 6 Topic Areas

- 20 Topics
- 57 Symposia
- 212 Lecture Sessions
- 27 Oral Poster Subsessions

# 2 Poster Sessions

# **Papers by Topic**

- A1 Electronic & Photonic Materials
- A2 Magnetic Materials
- A4 Materials for Nanotubes & -wires
- A5 Advanced Polymers A6 Functional Ceramic Materials &
- Devices **B1** Advanced Structural Ceramics
- **B2** Advanced Metallic & Hybrid Materials
- B3 Building MaterialsB4 Materials for the Extreme Environment
- **C1** Solidification & Solid State Transformation
- C2 Joining
- C3 Powder Synthesis & Processing C4 Extraction & Chemical Proces-
- sing of Metals C5 Coatings & Surface Engineering
- D1 Microstructural Characterisation Techniques
- D2 Mechanical Testing & Characterisation
- D3 Modelling on all Length Scales
- X2 Materials for Transportation
- X4 Biomedical Engineering
- Y1 Teaching Materials Science & Engineering

# **Geographical Distribution**

Western Europe Central and Eastern Europe Asia, Australia Americas Africa

# **2137 Papers Featuring**

7 Plenary Lectures 38 Keynote Lectures 102 Highlight Lectures 853 Lectures 121 Oral Posters 543 Poster Session I, 552 Session II



1254 485 234 The List of Participants will be permanently 118 46 updated on the website.



Nuremberg is a modern city with half a million residents, the main city of a European metropolitan region, and at the same time a rendezvous with history, architecture, museums, art treasures. The artistic impact of Albrecht Dürer, Veit Stoß, Peter Vischer and many other artists together with the patronage of wealthy patrician families still characterise present day Nuremberg.



The imperial castle, symbol of Nuremberg, is a visual testimony for the city's historic past. Between 1050 and

1571 it served all Emperors of the Holy Roman Empire as residence.



The Old City Hall comprises all buildings erected between the 14th and 17th century in the block border-

ed by Rathausplatz, Rathausgässchen and Theresienstraße.



The Church of Our Lady built by Emperor Charles IV was the first Gothic hall church in Franconia. The

main altar is the famous 'Tucher Altar".



The Hospice of the Holy Spirit was a foundation endowed by the rich Patrician Konrad Groß for old

and needy people.



The Wine Store is one of Nuremberg's most beautiful buildings. The front towards the river Pegnitz boasts

wooden galleries with metal fountains.



The National Socialist Party Rallies and Race Laws are just as indelibly linked with the city of Nuremberg as

the Nuremberg Trials against the major war criminals of the NS regime, marking the beginning of international criminal jurisdiction. Dealing with this legacy responsibly and openly has become the task of the city and its citizens. Nuremberg's exemplary commitment towards a city of peace and human rights has been recognised throughout the world. Today, the Party Rally Grounds host a comprehensive Documentation Centre situated at the 'Straße der Menschenrechte", the Street of Human Rights.



### Sponsor

Federation of European Materials Societies (FEMS)

- Associazione Italiana di Metallurgia (I)
- Austrian Society for Metallurgy and Materials (A)
- Benelux Métallurgie (B)
- Bond voor Materialenkennis (NL)Czech Society for New
- Materials and Technologies (CZ)
- Danish Metallurgical Society (DK)Deutsche Gesellschaft für
- Materialkunde (D) • Deutscher Verband für Material-
- forschung und -prüfung e.V. (D) • Estonian Materials Science
- Society (EE)
- Hellenic Society for the Science and Technology of Condensed Matter (GR)
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- Norsk Metallurgisk Selskap (N)Országos Magyar Bányászati és
- Kohászati Egyesület (H)
- Polskie Towarzystwo
- Materialznawcze (PL) • Slovensko Drustvo Za
- Materiale (SL) • Sociedad Española de Materiales (E)
- Sociedade Portuguesa de Materiais (P)
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- Ukrainian Materials Research Society (UA)

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# **Co-Sponsor**

TMS - The Minerals, Metals & Materials Society (USA)

# **Organising Societies**

- DGM Deutsche Gesellschaft für Materialkunde (D)
- DVM Deutscher Verband f
  ür Materialforschung und -pr
  üfung (D)
- PTM Polskie Towarzystwo Materialznawcze (PL)

# **Congress Office**

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