

Editorial

Dear All VINF/EXCELL Members,

The first International Conference on Functional Nanocoatings that was organized in Budapest from March 30th to April 2nd 2008 by the Chemical Research Center of the Hungarian Academy of Sciences was a successful event. The next EXCELL-VINF scientific event will be organized by Prof. Kwang-Leong Choy from University of Nottingham (UK) in November (see description below). The second main event will be the EXCELL-VINF long lasting advanced teaching program called "European post-graduate training on NanoFilms". The first courses will be given in Brussels in January 2009.

Enjoy your reading!

Sincerely yours,
M. Haïdopoulos.

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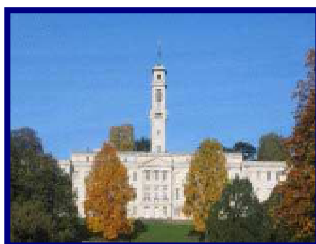
HIGHLIGHTS

International Workshop on Advanced Nanostructured Materials and Thin Films for Industrial Applications

University of Nottingham - UK
November 10-11 & 13th, 2008

Aim: The international event aims at bringing leading scientists and industrial experts together to spread fundamental knowledge and technological developments in advanced processing and manufacturing of nanostructured materials and thin films in order to explore and create new products, technologies and services into the markets.

Deadline: July 31st, 2008 for abstract submission



I-Nanoproduction 2008

Conference Chair:
Professor Kwang-Leong Choy
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Manufacturing
Engineering, University of
Nottingham
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Themes:

- 1) Advanced thin film processing and manufacturing methods of nanomaterials.
- 2) Novel and cost-effective thin film fabrication methods.
- 3) Industrial applications of thin films and nanostructured coatings in
 - a) Tribology
 - b) Energy
 - c) Electrical, electronics & optoelectronics
 - d) Biomedical

Note! A special course will be given by Prof. Stan Veprek for SME's about superhard coatings with industrial applications.

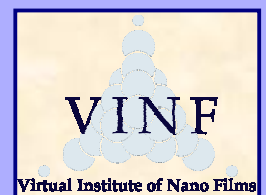
EXCELL-VINF “European post-graduate training on Nanofilms”

The Network of Excellence (FP7) EXCELL will launch in January 2009 (11 to 18th) its long lasting advanced teaching program called “European post-graduate training on NanoFilms”. It is composed of 5 Modules of courses (see below) and each module will be given in different location all over Europe (and even in Israel and in Russia), depending on the availability of equipment for practical trainings.

The program will start in Brussels with Modules I and II, in which NanoFilms preparation and NanoFilms characterization will be studied. The 3 other modules will be given in the following order: Module V in June 2009 (Frankfurt), Module III and a part of Module II in October 2009 (Moscow) and Module IV in May 2010 (Haifa). The program is opened to post-graduate EC and non-EC students, and to engineers/ researchers from SMEs dealing with issues in NanoFilms. Only 25 places available!

To get more information, please contact Prof. A. Fernandez-Camacho from INSTITUTO DE CIENCIA DE MATERIALES DE SEVILLA (<http://www.icmse.csic.es/>) at the following address: asuncion@icmse.csic.es

- ✓ **Module I:** Nanofilms preparation: Deposition techniques and surface modification
Brussels - January 11-18th, 2008
- ✓ **Module II :** Nanofilms characterization: Structural and chemical analysis, and surface analysis
Brussels - January 11-18th, 2008 (Part I)
Moscow - October 2009 (Part II)
- ✓ **Module III:** Nanofilms for mechanical and tribological applications
Moscow - October 2009 (Part II)
- ✓ **Module IV:** Nanofilms for biological applications
Haifa - May 2010
- ✓ **Module V:** Nanofilms and Nano-objects: Fundamental aspects
Frankfurt - June 2009



VINF website : www.VINF.eu

Some new e-learning presentations are now available on the VINF website (www.VINF.eu) in the section “Services & Products”. Presentations are available with or without sound. They were mainly recorded during the 2 last EXCELL events (“the 1st International Conference on Functional Coatings” in Budapest in April 2008 and “Recent developments in the processing and applications of structural metals and alloys” in Como in June 2008).

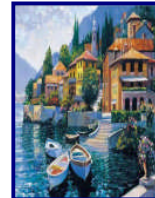
Prof. Enrico Evangelista



Enrico Evangelista obtained the degree of doctor in Industrial Chemistry in 1969 at Bologna University where, in the Solid State Physics Department, as junior researcher, performed investigations on i) internal friction of metals and alloys, considering in particular the contribution of lattice defects on the inelastic properties, and ii) on mechanical properties of UO₂ micro spheres in the frame of a commercial research program. He became, in 1983, associate Professor and in 1990 full professor in Metallurgy at the Engineering Faculty, University of Ancona. Over the years he contributed primarily in assessing the superplastic route for production of spherical tanks in commercial Ti alloys, and in studying the constitutive equations of most of structural alloys under hot forming conditions. The researches were performed in the frame of scientific programs funded by EC in the frame of research actions, national agencies, private companies; the results were worked out for a rapid transfer to industrial processes. He was appointed as visiting professor at Universities of Concordia-Montreal, Trondheim, Tokyo and Pohang. In the 2008 he was granted with Distinguished Research Professor status in the Department of Chemical and Materials Engineering at the Dayton University, USA. He was elected Fellow of the American Society of Materials, member of the European Academy of Sciences, of scientific board of several International Conferences. He has published, together with more than 70 co-authors, almost 250 papers in scientific journals.



The last Conference “Recent developments in the processing and applications of structural metals and alloys” in Como in June 2008 was dedicated to Prof. Evangelista in the occasion of his 70th birthday. It was the occasion for some of his students and co-workers to express their gratitude for his invaluable guide in their scientific and professional progresses.



Dr. Frédéric Mirabella



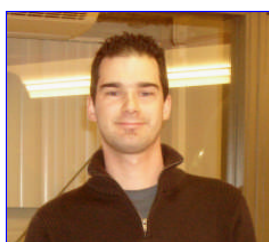
Dr. Frédéric Mirabella works in Belgium at the ArcelorMittal Research Centre of Liège since September 2006 in the New Coating Technology department, but he is also the **General Manager of VINF**. His first experience as employee of ArcelorMittal was concerned with the management of the Network of Excellence EXCELL. Together with he is leading several R&D projects for the steel company aiming to put on the market steel products with advanced functionalities. His physics scholarship was fully executed in the University of Namur (Belgium) where he obtained his PhD in 2005. The thesis was related to the study of diluted magnetic semiconductors and thin film deposition on layered semiconductors. Dr. Mirabella main research interests are vacuum coatings and surface characterisation of product oriented materials. He is also very interested by marketing aspects of product development.

Study of growth mechanism of titanium dioxide thin films with photocatalytic properties prepared on steel substrates by DC magnetron sputtering

David Vicky (ArcelorMittal Liège Research)

! Best Poster Award !

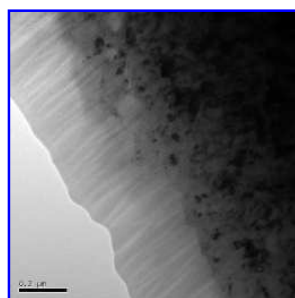
**At the “Innovations on Thin Films Processing and Characterization Congress”
Organized by the French Society of Vacuum**



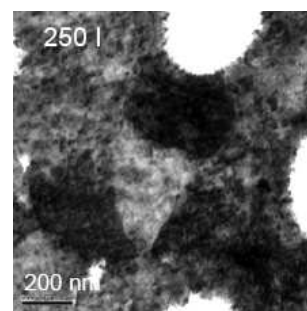
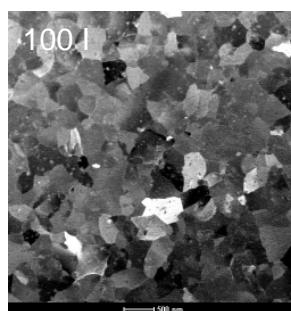
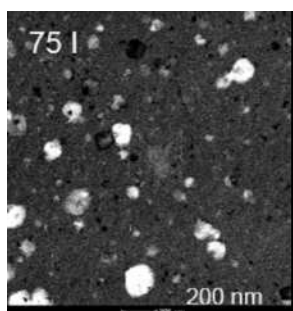
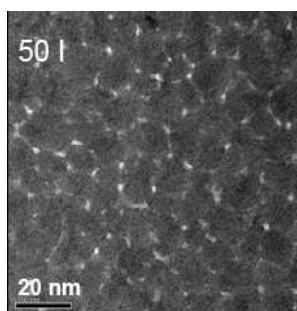
David Wicky works as PhD student in the Laboratory of Inorganic Structural Chemistry at University of Liège (Belgium), in close collaboration with ArcelorMittal Research Liège centre to develop “active surfaces” on steel. The functionalization of steel surfaces by titanium dioxide photocatalytic coatings allows the development of new steel products with high added value and new properties such as air or water purification, deodorizing, bactericidal effect and self cleaning. Titanium dioxide films have been deposited by DC reactive magnetron sputtering.



The aim of David Wicky’s thesis is to understand relations between PVD process parameters, titanium dioxide film characteristics, and their resulting photocatalytic properties. TiO_2 coatings are made in a batch reactor and characterized by various techniques such as XRD at grazing incidence, micro-Raman spectroscopy, X-ray fluorescence and step measurement to determine thickness, SEM and AFM analyses. Growth of the coating, in terms of morphology and crystalline structure is studied as a function of its thickness by TEM. Transverse section of coated steel samples shows the columnar structure of the coating.



PVD TiO_2 coating is also deposited onto carbon membranes, which were previously fixed on the steel substrates, in order to provide a top view of the film structure. After deposition, the membranes are analyzed by TEM. By increasing the coating thicknesses, the growing mechanism can be easily followed step by step.



JOB OFFERS

PhD Position “**Weak Interactions in Carbon Nanosystems**”
Institut des Matériaux (PMN) Nantes, France
Dr Christopher Ewels et Prof. Serge Lefrant

Position summary

The project is primarily a theoretical study of weak interactions in carbon nanosystems, with some experimental components. Starting with computer modelling of the interaction between carbon nanotubes, themselves and their environment (breathing modes), it will move on to conducting conjugated polymer - nanotube hybrids. Finally we will construct and simulate innovative designed fullerene-nanotube systems for controlled nanotube assembly. The project involves collaboration with other researchers within the Institute (IMN) as well as several European groups.

Candidate

We are looking for an enthusiastic and highly motivated candidate with a strong background (Masters level) in materials physics/chemistry and genuine interest in computer modelling. Previous experience with UNIX/linux as well as theoretical physics/chemistry is a bonus. We prefer candidates with a good team spirit and sense of curiosity, who like to work in an internationally oriented environment. While the project can be conducted in French or English, the final thesis will be in French.

References

Further details on the PMN Group: www.cnrs-imn.fr/PMN

Contact

Further details are available from Dr Chris Ewels at chris.ewels@cnrs-imn.fr - interested candidates should send a copy of their CV to this email address.

EXCELL-VINF COMING EVENTS (2008 - 2009)

- **November 10, 11 and 13th, 2008:** International Workshop on Advanced Nanostructured Materials and Thin Films for Industrial Applications, University of Nottingham - UK.
- **January 11-18th, 2009:** “European post-graduate training on Nanofilms” / Modules I & II (part III)
- **April 6th and 7th, 2009:** Workshop in Cambridge (UK): Subject to be defined
- **June 2009:** Female Workshop in Frankfurt: Subject to be defined
- **June 2009:** “European post-graduate training on Nanofilms” / Modules V
- **October 2009:** “European post-graduate training on Nanofilms” / Modules II (Part II) & III

SCIENTIFIC FUTURE EVENTS (2008-2009)

- **Eurocorr 2008**, September 7 - 11 2008 - Edinburgh (Scotland)
<http://www.eurocorr.org/>

Eurocorr encapsulates the critical role of corrosion science, technology and engineering in extending the useful life of materials. The conference programme will comprise (frequently joint) meetings, sponsored by the various Working Parties of the EFC, together with specially convened symposia and workshops sponsored by the local organising committee. The congress will also be accompanied by a full exhibition at which companies, research institutes and organisations will be showing their products and services.

Among the conference topics, on will be of particular interest in the working party WP 6 and 14: "Corrosion Inhibition, Nano-coatings and Smart Coatings".

- **E-MRS Falling Meeting**, September 15-19, 2008 - Warsaw (Poland).
<http://www.e-mrs.org/meetings/fall2008/>

The meeting will include 12 symposia, 2 plenary sessions, as well as an exhibition of products and services of interest to those participating in the event.

Topics of the Symposium:

- **Symposium A:** Raman scattering in materials science
- **Symposium B:** Transparent and Flexible Electronics: from Materials to Devices
- **Symposium C:** Smart Materials for Smart Devices and Structures
- **Symposium D:** Novel synthesis processes and design of nanomaterials for catalytic applications
- **Symposium E:** Plasmonic nanostructures for application in the life sciences
- **Symposium F:** Nanocomposite materials
- **Symposium G:** Morphology and dynamics of nanostructures and disordered materials via atomic-scale modelling
- **Symposium H:** Crossing frontiers in designing of bio-inspired materials - a novel breakthrough in material science
- **Symposium I:** Functional and Structural Ceramic and Ceramic Matrix Composites (CCMC)
- **Symposium J:** New Opportunities and Challenges in Material Research using Phonon and Vibrational Spectra
- **Symposium K:** Mechanics of nanomaterials
- **Symposium L:** New Scaffolds for Tissue Engineering: Materials and Processing Methods

- **11th International Conference on Plasma Surface Engineering (PSE)**
September 15-19, 2008 - Garmisch-Partenkirchen (Germany)
<http://www.pse2008.net/>

The conference is organized by the **European Joint Committee on Plasma and Ion Surface Engineering**. In view of the ever-growing interest in the preceding PSE conferences with more than 600 participants from Europe and overseas, this biennial conference is a well-established and important forum in the field of plasma and ion-/particle-beam-assisted surface and thin film technology. It is the aim of the PSE conferences to provide an opportunity for the presentation of recent progress in research, development and applications of plasma and ion-/particle-beam surface modification and engineering, and of plasma and ion-/particle-beam-assisted deposition of coatings and thin films. The presentations will help clarify the relationships between the process parameters, the structural properties and the functional properties of the modified surface coatings and the thin films.

Topics of the conference:

1. Plasmas for surface engineering
2. Deposition technologies
3. Films and coatings
4. Properties and characterization of films and modified surfaces

Two tutorial sessions (Fundamentals and Trends of Plasma Surface Processing and European Patents on Plasma Surface Engineering) will also be organized, as well as a workshop on Thin Films for Solar Technologies, an Industrial Exhibition, and a Job Placement Center/Technology Placement Center.

- **IASTED International Conference on Nanotechnology and Applications**, September 29-October 1, 2008 - Crete (Greece).
<http://www.iasted.org/conferences/home-615.html>

- **2nd International Symposium on Transparent Conductive Oxides**, October 22-26, 2008 - Hersonissos, Crete (Greece).
<http://www.iesl.forth.gr/conferences/tco2008/index.aspx>

Topics of the Symposium:

- 1- Fundamentals
 - Functional/ multi-functional TCOs
 - Mesoporous / Nanoporous materials
 - Piezoelectric, magnetic and dielectric TCOs
 - Modeling and simulation
 - Electrical, mechanical and optical properties
 - TCO structure / defects / interfaces
- 2- Fabrication, Processing, Characterization
 - Physical techniques (PLD, sputtering, etc)

- Chemical techniques (CVD, PE-CVD, MOCVD, ACG, Spray pyrolysis, spin coating etc.)
- Direct writing, printing and patterning
- New tools and equipment

3- Applications

- TCO electrodes and device fabrication
- P-type metal oxide materials and devices
- Flexible electronics
- Transparent devices (TTFTs, OLEDs, AM-OLEDs)
- TCO sensors (environmental / food / medical)
- TCOs in photovoltaic devices
- Protective / Photocatalytic and active coatings
- Wavelength-selective devices based on TCOs
- Emerging exciting applications

- 14th International Conference on Thin Films and Reactive Sputter Deposition, November 17-20, 2008 - Ghent (Belgium).
<http://www.ictf14.ugent.be/>

Topics of the conference:

- 1- Fundamentals of Thin Film Growth & Epitaxy
- 2- Nanostructured Growth
- 3- Organic T.F.'s
- 4- Biosurfaces related to T.F. growth
- 5- Applications of T.F. growth
- 6- Advances in deposition techniques
- 7- Characterization and Instrumentation

- THERMEC'09 International Conference on Processing & Manufacturing of advanced Materials, August 25-29, 2009 - Berlin (Germany).
<http://thermec.uow.edu.au/>

The **Thermec'2009 Conference** will cover all aspects of processing, fabrication, structure/property relationship and engineering applications of both ferrous and non-ferrous materials including advanced materials for biomedical applications, automotive vehicle materials, nanostructured materials, aerospace materials and other advanced materials.

Topics of the Conference:

- Al & Mg Alloys
- Aerospace Structural Metallic Materials
- **Steels** (HSLA/IF/TRIP/Stainless/High Nitrogen Steels/Advances in Bainitic/Martensitic)
- Superalloys/ Heat Resistant Steels (Thin Slab & Strip Casting)
- Automotive Vehicle Technology (Matls)
- **Advanced Materials for Biomedical/Bioengineering Applications**
- **Surface Engineering/Coatings**
- Composites

- Dynamic Behaviour of Materials
- Fuel Cells & Hydrogen Storage Technologies
- Intermetallics
- Friction Stir Processing/Welding
- Metallic Foams
- Metallic Glasses/ Bulk Metallic Amorphous Materials
- **Nanostructured Materials**
- Carbon Based Nanostructured Materials
- Severe Plastic Deformation
- Functionalized Biomaterials Therapeutic Applications
- **Smart/Intelligent Materials & Processes**
- Powder Metallurgy
- Residual Stresses
- Modelling & Physical Simulation
- **Thin Film**
- Multiscale Mechanical Modelling of Complex Materials / Applications
- Texture
- Welding & Joining
- Fracture & Mechanical Behaviour
- Advanced Tomographic Methods in Materials Science/ Engineering