



### Editorial

Dear All VINF/EXCELL Members,

The first International Conference on Functional Nanocoatings will start in a few days. It is organized in Budapest from March 30<sup>th</sup> to April 2<sup>nd</sup> 2008 by the Chemical Research Center of the Hungarian Academy of Sciences. More than 100 people will attend that event organized in the frame of the EXCELL NoE FP6 and NANOINDENT FP7 projects.

At the same time will take place the EXCELL Global meeting as well as the VINF General Assembly. This will be the opportunity for the members to summarize their activities and to prepare the next research roadmaps.

We are looking forward towards meeting you there!

Sincerely yours,  
M. Haïdopoulos.

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### HIGHLIGHTS

#### International Conference

Recent Developments in the processing and applications of structural metals and alloys

The Italian researchers of Metallurgy are glad to invite all the scientists involved worldwide in studies on **Metals and Alloys** to a special conference to be held at **Como Lake** on **22-27 June 2008**.

The conference will serve as a forum for the exchange of ideas on the latest developments of **thermo-mechanical** processing and of hot and cold deformation of metals. A nanostructured multifunctional coating session will also be organized.



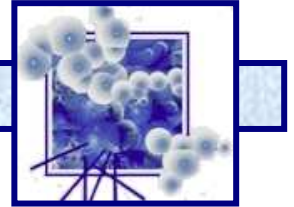
#### Topics :

- Severe plastic deformation (SPD) of nanostructured structural materials.
- Creep and hot deformation of metallic materials.
- Modern joining techniques.
- New Ferrous and non ferrous alloys for structural applications.
- Multifunctional nano-structured coatings.

#### Information :

[http://www.enjoyevents.it/INCORSO\\_eventi\\_in\\_corso\\_organizzazione\\_gestione\\_organizzare\\_gestire\\_events.php](http://www.enjoyevents.it/INCORSO_eventi_in_corso_organizzazione_gestione_organizzare_gestire_events.php)





## **Business Plan**

The business plan (BP) was submitted to the European Commission on January 7<sup>th</sup>, 2008 in the report Deliverable 7.5. This BP was based on an analysis of the Nanotechnology Market and particularly in the area of Thin Films and coatings and on how the VINF should operate linked to the objectives of the organisation. In particular, a study was describes on similar organisations that already exist in this area.

This BP-version 2 will be prepared by the EXCELL coordinator team with support from Eurogroup Consulting Alliance (<http://www.eurogroup.be>), which will bring its expertise in market search and benchmarking. Eurogroup Consulting Alliance is one of Europe's top consultancy organisations with thirty experienced consultants in Belgium working in four key sectors of the economy: finance, health care, the public sector and industry. Around 700 consultants with 10 offices in 10 countries work under the umbrella of Eurogroup Consulting Alliance Europe-wide. The EXCELL coordinator team and Eurogroup Consulting Alliance met already 4 times in Liège, in order to set up an action plan to provide the BP-version 2 before the end of June. One meeting per week between the two entities is planned until the end of the collaboration for a close follow up of that subject.

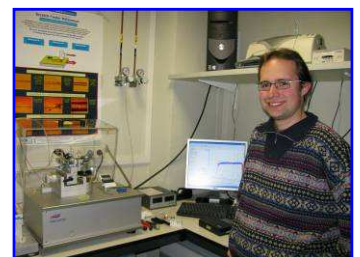
## **The Technological University of Munich is back into EXCELL!**

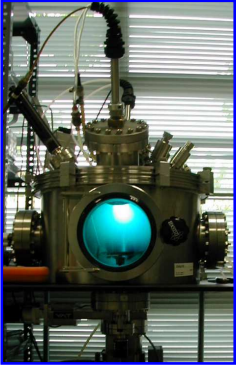
The Technological University of Munich (TUM) will come back as EXCELL core partner for years IV and V, with an official start in April 1<sup>st</sup>, 2008. The TUM will also be by automatic Executive Member of VINF.

Prof Stan Veprek will be still active in the hard and superhard coatings research roadmap but a group of 3 of his co-workers will broaden the scientific scope of EXCELL beyond the coatings of Prof Veprek. Prof Niewa (associated Prof.) is expert in new synthetic routes for nano-sized materials as precursors for advanced ceramics and catalysis. Prof Hinrichsen (Full Professor & Chair) is dedicated to new nano-materials for heterogeneous catalysis, with some relevance aspects for bio-materials such as band-gap engineered oxides for protection of the human body against UV radiation of sun. Prof Köhler ("Koehler") will also be involved with nano-materials for catalysis.

## **Dr David Philippon**

Dr Philippon has a PhD thesis on the Mechanisms of the Lubricants Additives at Laboratory of Tribology and Dynamic of Systems (Ecole Centrale de Lyon - France).





Then, he decided to start in December 2007, a post-doctoral position with the team of Prof. A. Fernandez at the Institute of Science of Materials of Sevilla (ICMSE). He is involved in the commissioning of a new PVD deposition chamber in the ICMSE equipped with 4 magnetron heads in the frame of EXCELL/VINF project. He will be also involved in PVD deposition and coatings characterization (mechanical and tribological properties).

His expertise stands mainly on materials science, tribology and tribochemistry as well as UHV technology and Surface Analysis (Auger/XPS).

### Seventh Framework Program (FP7)

After many exchanges of emails between all the EXCELL members in January and February, no project was finally proposed in the frame of the last FP7 launched by Europe (deadline for the 1<sup>st</sup> stage evaluation in the field of Nanosciences, Nanotechnologies, Materials and New Production Technologies: March 6<sup>th</sup>, 2008). Lack of time and mismatch with the proposed calls were the two main reasons of this failure.

### EXCELL Participation to ICMCTF - San Diego (CA-USA) - April 28-May 2 2008 (<https://www2.avs.org/conferences/icmctf/>)

EXCELL people will take part in the 35<sup>TH</sup> INTERNATIONAL CONFERENCE ON METALLURGICAL COATINGS AND THIN FILMS (ICMCTF-2008):

- Dr. **Irena Gotman** (Technion - Israel Institute of Technology, Haifa, Israel) as an Invited speaker will give a talk titled “Surface Functionalization of Surgical Implants for Cell Guidance and Control”
- Prof. **Dmitry Shtansky** (State Technological University “Moscow Institute of Steel and Alloys) will be present as a Symposium Chairman with the topic “Bioactive coatings and surface biofunctionalization”.
- Prof. **Asunción Fernández Camacho** (Materials Science Institute of Sevilla - Spain) will be present as chairman in the E1 session named: Friction and wear of coatings: lubrications, surface effects & modelling.



### Set-up of “European Post-graduate training on Nanofilms”

The program is currently planned to be divided into 5 modules and should be fulfilled during the next EXCELL Global Meeting in April 2008 in the frame of the mobility plan:

- ✓ Module I: Nanofilms preparation: Deposition techniques and surface modification
- ✓ Module II : Nanofilms characterization : Structural and chemical analysis, and surface analysis
- ✓ Module III: Nanofilms for mechanical and tribological applications
- ✓ Module IV: Nanofilms for biological applications
- ✓ Module V: Nanofilms and Nano-objects: Fundamental aspects

The module I and II should be proposed by the Université Libre de Bruxelles (ULB) and by the Institution de Ciencia de Materiales de Sevilla in January 2009 in Brussels. The Module V should be organized by the Goethe University of Frankfurt in March 2009.

### VINF website : [www.VINF.eu](http://www.VINF.eu)

After a meeting in Ancona between the coordinator team and the IT team from SHS and with the agreement of the VINF president Prof Marie-Paule Delplancke, it was decided to buy a new domain ([www.VINF.eu](http://www.VINF.eu)) that was easier to remember than the previous one (that is still also working). This new website address will now be used systematically in all VINF communications.

The last 2 months, the IT team worked intensively together with the EXCELL coordinator team to propose a new design of the VINF website, in coherence with the spirit of the Institute that is to promote educational and research activities, to become a reference point for Industries and Universities partners and potential customers, and to help in creating a network of actors all involved in the nanofilm field.

Now, the VINF website can be considered as a centralized web application that contains:

- A self-promoting website that is able to offer services for every kind of users ;
- A Customer Relationship Management (‘CRM’) portal that is able to manage and to promote the business activity of the Institute;
- And some tools tightly related with the Collaboration Platform Tool: content-database, forum & mail system, on-line web-conferences.

Comments and suggestions are more than welcome already regarding the new version of the VINF website. There is still place for improvement ...



## VINF knowledge dissemination for general public and SME's

Professor E.A. Vinogradov (*Picture*) and Professor Yu.E. Lozovik participated in TV discussion on SGU TV channel (in programme “Sobesedniki”, about the role of optical spectroscopy in modern science and technology (January 26 and 29, 2008, Russia). This program is available at [http://www.sgutv.ru/telecast\\_23.htm](http://www.sgutv.ru/telecast_23.htm)).



Information regarding VINF organization and its activities are now available on the biggest multilingual free-content encyclopaedia on the Internet, Wikipédia, at the following address: <http://en.wikipedia.org/wiki/VINF>

The information will be soon available in other languages such as Spanish, French, and Italian.



Università Polytecnica delle Marche in Ancona (Italy) in collaboration with Meccano S.p.a. (Centre for technological innovation of SMEs in the mechanical sector of Marche region, Italy) in the framework of ITAC (Innovation Technology for Adriatic Competitiveness EU project), gave three presentations to the local industrial partners: mechanical, electronic and plastic industry chapter, about nano-structured and multifunctional coatings, illustrating potential benefits to be gained by the use of such coatings. These presentations were given by the team of Prf.

Enrico Evangelista and Stephano Spigarelli. Moreover, Università Polytecnica delle Marche promoted the VINF during participation to “*Decorative coatings applied to product aesthetic*” in Milan (Italy), also by preparing and distributing an Italian version of VINF leaflet (available if required).

In the quarterly International Journal Information and Innovation, No.1 (2007), Association “Russian House for International Scientific and Technological Cooperation” presented developments of Russian enterprises including MISA innovation “Biocompatible nanostructured coatings for medicine”.

In January 2008, the Frankfurt Institute for Advanced Studies (FIAS), as a recently founded research institution, had an evaluation meeting. The international evaluation committee (including 3 Nobel Prize holders), official representatives from university administration and local authorities have attended this meeting, in which the FIAS group took an active part. The FIAS used this opportunity to acknowledge EXCELL through presentations and posters.

For raising awareness of general public, the FIAS was involved in organization of the institute's seminars/ colloquiums and organization of the group seminars. The institute's seminars are organized once a week, announced for the whole University and are open for public. The group members gave in 2007 5 lectures in frame of the Institutes's seminar. The group's seminars are organized on the weekly basis also, are opened for the public and



broadly advertised. The program of the seminars and meetings is open on the group web-page: <http://fias.unifr Frankfurt.de/mbn/>



### VINF Logo

The VINF logo was now available 2 formats (.jpg and .png) at the following address on the platform: [http://sh-meetsrv2.euro-meet.net/content/dav/euro-meet/workspaces/PICTURES/Logos/VINF\\_LOGO\\_JPG.jpg](http://sh-meetsrv2.euro-meet.net/content/dav/euro-meet/workspaces/PICTURES/Logos/VINF_LOGO_JPG.jpg) and [... NPG.npg](#) and should be now used in all VINF documents.



### VINF new secretary



A new secretary for the VINF, Nicolas Sacré, was newly hired in March 17<sup>th</sup>, 2008. He will be located in the VINF office in Liège and will work tightly with the VINF General Manager, especially on the strategy of communication and marketing tools.

His Media and Communication Training at the New York University and his working experience especially as salesman, Commercial assistant, and Project manager for an editing company, Trader and webmaster will be more than useful in the frame of the new VINF Organization.

Nicolas, welcome on board!



Prof. K.L. Choy



Prof. Kwang-Leong Choy is in the School of Mechanical, Materials, Manufacturing Engineering and Management at the *University of Nottingham*. The University of Nottingham is the winner of the Times Higher Education Institution of the Year Award (2006).

She has extensive experience in thin film and coating technology as well as synthesis of nanocrystalline materials. She has published over 100 papers and 10 patents. She obtained her PhD in Materials Science from the University of Oxford, where she was awarded the Hetherington Prize and Oxford Metallurgical Society Award. She was a Violette and Samuel Glasstone Research

Fellow at Oxford before joining Imperial College in 1994 as a Governor's Lecturer and was promoted to Reader in 2001.

She pioneered the innovative *Electrostatic Spray Assisted Vapour Deposition (ESAVD)* method which led to the Grunfeld Medal Prize by Institute of Materials (UK) and a spin-out company, IMPT Ltd. She was awarded as Visiting Professorship (2001/03) by the Swedish Engineering Research Council at the University of Uppsala.

She has also co-founded *Southside Thermal Sensing Ltd*, a spin-out company from Imperial College London. She came to Nottingham in October 2003 and is leading a research team developing novel and cost-effective vapour processing of ceramic and polymeric films, and nano-structured materials. She has been awarded research contracts totalling over £4.5M from EPSRC, HEFCE, the Royal Society, and many companies. Currently, her group is participating in four large research projects related to nanomaterials and thin films, including those for clean energy applications, with academic and industrial collaborations: EPSRC Supergen on Fuel Cells, EU FP6-EXCELL, FOREMOST and RESTOOL.

The Innovative Materials Processing Laboratory, headed by Professor Choy, has recently received refurbishment and equipment grants in excess of £1.2 million from the University and SRIF II (for nanomaterials processing facilities). A range of advanced nanomaterials processing equipment for the fabrication of nanopowders, nanostructured films and nanocomposite coatings is available. This includes the unique novel non vacuum Electrostatic Assisted Vapour Deposition equipment, one for the processing of nanostructured thin films and another for the production of nanoparticles and quantum dots. Other key processing equipment includes Aerosol assisted Chemical Vapour Deposition, Electrostatic Spray Assisted Vapour Deposition, Atomic Layer Deposition, Atmospheric Plasma Assisted CVD and Novel laser assisted deposition. The research team led by Prof. KL Choy at The University of Nottingham consists of multi-disciplinary expertise in materials, materials, physics and engineering.

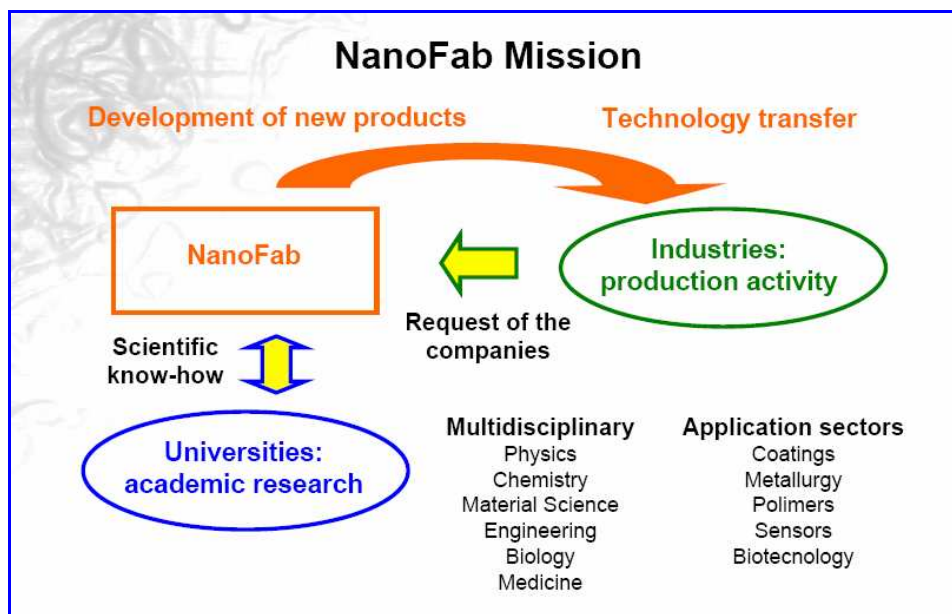
The group focuses on: i) Surface coating and deposition technologies of ceramic and polymer-based nanostructured coatings; ii) Surface engineering, interface control, coating durability and reliability. The current research interest focuses on the development and applications of various coatings and films: tribological, protective, self-cleaning, self-lubricating, biomedical and pharmaceutical, semi-conductive coatings and photovoltaic coatings, etc.



## POTENTIAL ASSOCIATE MEMBERS



**NanoFab** - Nanofabrication Facility - is one of the first Italian research laboratories dealing with high-tech transfer to private companies, in the field of nanotechnology applied to materials. Its research activities are focused on thin films, nano-structured coatings, surface treatments, nano-structured polymers, powder metallurgy, chemical and bio-chemical sensors development and micro-arrays. NanoFab strongly cooperates with CIVEN, the association of the three Venetian universities (Padua, Venice and Verona) which guarantees the scientific development and coordination of the academic activities in the field of nanotechnologies.



A meeting between some of the VINF members (ArcelorMittal Research Liège and Università delle Marche) was organized in March 13, 2008, in the frame of the Nanotech2008 conference in Venice. The VINF team presented briefly the concept and activities of the VINF organization during an opened discussion. A complete visit of the novel high-tech facilities of Nanofab was organized by the head of the laboratory, Ing. Diego Basset. A broad range of equipments was presented by one of the 20 Nanofab researchers: plasma reactors (PVD, PECVD, atmospheric plasma) and other coating techniques (sol-gel, cold spray), characterization equipments (AFM, SEM, GDOES, nanoindenter, ellipsometer, lasers and optical characterization tools, profilometer...), as well as DNA microarray spotter and recognition system, polymeric extruder and adiabatic HVC press.

**To get more information:**

[www.nanofab.it](http://www.nanofab.it)

**Emails:**

[d.basset@nanofab.it](mailto:d.basset@nanofab.it) (director);

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**Address:**

*NanoFab - Via delle Industrie, 5 - 30175 Venezia-Marghera - Italy*





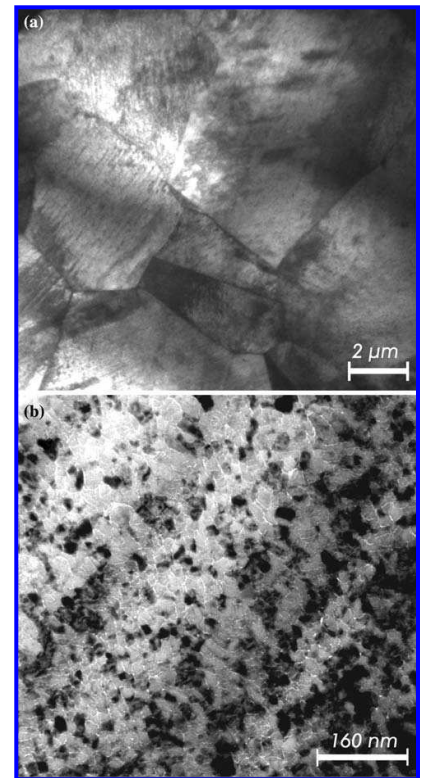
## Thermal stability of CrN<sub>x</sub> nanometric coatings deposited on stainless steel

C. Paternoster, A. Fabrizi, R. Cecchini, M. El Mehtedi, P. Choquet  
J. Mater. Sci. (NANOSMAT 2007 - INTERNATIONAL CONFERENCE ON SURFACES, COATINGS, AND NANOSTRUCTURED MATERIALS)

**! Best Paper Award !**  
In the "Surface Science: from bulk to nanoscale" section

Among protective coatings, CrN<sub>x</sub> represents one of the most commonly studied and employed materials. Besides of good resistance to wear and corrosion and low friction coefficient, it has high hardness and good thermal barrier properties. In many industrial applications (e.g., automotive, construction, decorative), CrN<sub>x</sub> is used as protective coating for steel. Physical vapor deposition is able to produce high-quality coatings and allows for a precise control of deposition parameters, such as the applied bias and the gas flow rates in the reactive atmosphere, which are responsible for the film structural, morphological, and mechanical properties.

The samples studied in this work were deposited by Cockerill Sambre ARCELORMITTAL S. A. (Belgium) steel company, using a specifically designed reactive magnetron sputtering apparatus for in-line coating of flat stainless steel coils of 1.5 m width. This apparatus allows for continuous production, with speed line of 5-15 m/min (**Picture: TEM in plane view of sample A showing: (a) substrate grain boundaries and the slip bands at low magnification, and (b) coating microstructure at higher magnification**).



The properties of nanometric CrN<sub>x</sub> coatings deposited by reactive magnetron sputtering on AISI 304L stainless steel were studied by transmission electron microscopy, grazing incident X-ray diffraction, Atomic Force Microscopy, and nanoindentation. The effect of annealing, both in air and vacuum, on the coating crystal structure, surface morphology and hardness were also investigated. It was found that annealing in vacuum-induced phase transformation from CrN to Cr<sub>2</sub>N, while after annealing in air only Cr<sub>2</sub>O<sub>3</sub> phase was present. Surface roughness did not increase for annealing in vacuum. CrN<sub>x</sub> coatings with higher Cr<sub>2</sub>N phase content showed lower roughness increase for annealing in air. Measured hardness was >10 GPa for as-deposited CrN<sub>x</sub> samples. An increase in hardness up to >20 GPa was found for vacuum-annealed samples.



## SELECTED SCIENTIFIC CONTRIBUTIONS

- ❖ J.C.Sanchez-López and A.Fernández, “Doping and alloying effects on DLC coatings” (p.311-338). Chapter in the book: “Tribology of Diamond-like Carbon Films. Fundamentals and Applications”. C.Donnet and A.Edemir (eds.). Springer, New York, 2008. ISBN: 978-0-387-30264-5. e-ISBN: 978-0-387-49891-1.
- ❖ “Characterization of nanostructured Ti-B(N) coatings produced by direct current magnetron sputtering”. C. López-Cartés, D.Martínez-Martínez, J.C. Sánchez-López, A.Fernández, A.García-Luis, M.Brizuela, J.I.Oñate. *Thin Solid Films*, 515, 3590-3596 (2007).
- ❖ “Surface-modified Pd nanoparticles as a superior additive for lubrication”. L. Kolodziejczyk, D.Martínez-Martínez, T.C.Rojas, A.Fernández, J.C. Sánchez-López. *J. Nanoparticle Res.*, 9, 639-645 (2007).
- ❖ “Depth profiling and compositional study of implanted surface layers and nitride multilayers by a combined GDOES, NRA and RBS analysis”. C. Fernández-Ramos, J.García-López, A.Fernández, R.Martínez, J.A.García, R.J.Rodríguez. *Plasma Processes & Polymers*, 4, S851-S856 (2007).
- ❖ Xianghui Hou, C.X.Shan, Kwang-Leong Choy, “Microstructures and tribological properties of PEEK-based nanocomposite coatings incorporating inorganic fullerene-like nanoparticles”, *Surface and Coatings Technology*, 202, 2287- 2291 (2008).
- ❖ C.X.Shan, Xianghui Hou, Kwang-Leong Choy, “Corrosion resistance of TiO<sub>2</sub> films grown on stainless steel by atomic layer deposition”, *Surface and Coatings Technology*, 202, 2399-2402 (2008).
- ❖ C.X.Shan, Xianghui Hou, Kwang-Leong Choy, Patric Choquet, “Improvement in corrosion resistance of CrN coated stainless steel by conformal TiO<sub>2</sub> deposition”, *Surface and Coatings Technology*, 202, 2147- 2151 (2008).
- ❖ Jingwang Yan, Xinghui Hou and Kwang-Leong Choy, The Electrochemical Properties of LSM-Based Cathodes Fabricated by Electrostatic Spray Assisted Vapour Deposition. *Journal of Power Sources*. Accepted (3 Feb 2008).
- ❖ P. Berke, M.-P. Delplancke-Ogletree, A Lyalin, V.V. Semenikhina, A.V. Solov'yov, - Simulation of the nanoindentation procedure on Nickel on the smallest length scale: a simple atomistic level model, to be published in *Latest Advances in Atomic Cluster Collisions: structure and dynamics from the nuclear to the biological scale* (edited by J.-P. Connerade and A.V. Solov'yov), Imperial College Press, London (2008).
- ❖ Manuel D. Abad, Juan C. Sánchez-López, Angel Berenguer-Murcia, Vladimir B. Golovko, Mirco Cantoro, Andrew E. H. Wheatley, Acunsió Fernández, Brian F. G. Johnson, John Robertson, *Diamond Rel. Mater.*, in press.



- ❖ J. Geng, D. A. Jefferson, B. F. G. Johnson, *J. Am. Chem. Soc.*, in press.
- ❖ J. Geng, W. Zhou, P. Skelton, W. Yue, I. A. Kinloch, B. F. G. Johnson, A. H. Windle, *J. Am. Chem. Soc.*, in press.
- ❖ Vibrational spectroscopy of hexadecylphosphonic acid self-assembled monolayer on TiN coated Nitinol. V.N. Denisov, B.N. Mavrin, N.N. Novikova, E.A. Vinogradov, V.A. Yakovlev, I. Gotman, G. Zoran. Abstract book of the 2<sup>nd</sup> International Conference on Surfaces, Coatings and Nanostructured Materials NanoSMat 2007, p.321. Algarve, Portugal. 2007.
- ❖ “Nanomechanical investigations of SiON coatings”, P.Nagy, D.Aranyi,V.Godinho, C.Fernández-Ramos, A.Fernández Camacho, E.Kalman, “7<sup>th</sup> European Symposium on Nano-mechanical Testing”, Hückelhoven, Germany, September 2006. Oral presentation.
- ❖ “Manufacture of coated flat steel products by vacuum plasma sources and presentation of their properties”, P.Choquet, A.Douard, A.Fabrizi, C.Fernández-Ramos, C.X.Shan, I.Avramova, “Workshop on Surface Treatments and Coatings for mechanical and aeronautical applications”, Sevilla, Spain, March 2007. Oral presentation.
- ❖ “Correlation between properties and microstructure in Si-O-N nanostructured coatings obtained by magnetron sputtering”, V.Godinho, C.Fernández-Ramos, T.C.Rojas, M.P. Delplancke-Ogletree, A. Fernández, “ICMCTF International Conference on Metallurgical Coatings and Thin Films”, San Diego, USA, April 2007. Oral presentation.



## FUTURE EVENTS

### EXCELL - VINF

- International conference on functional coatings, March 30- April 2, 2008 - Budapest (Hungary). <http://www.chemres.hu/nanocoatings/>
- EXCELL Global Meeting, April 3, 2008 - Budapest (Hungary)
- EXCELL Annual Revue Meeting with EC, June 19-20, 2008 - Como (Italy).
- International Workshop on Recent developments in the processing and applications of structural metals and alloys, June 22-27, 2008 - Como (Italy).

Topics of the conference:

- 1- Severe plastic deformation of nanostructured structural materials
- 2- Creep and hot deformation of metallic materials
- 3- Modern joining techniques
- 4- New ferrous and non ferrous alloys for structural applications
- 5- Multifunctional nanostructured coatings

### OTHER EVENTS

- 35<sup>th</sup> International Conference on Metallurgical Coatings and Thin films (ICMCTF), April 28 - May 2, 2008 - San Diego (California, USA).  
<https://www2.avs.org/conferences/icmctf/>

The ICMCTF integrates fundamental and applied research focused on thin film deposition, characterization, and advanced surface modification techniques. It draws 800 attendees each year with multiple oral technical sessions. Additional elements of the conference program include a two day exhibition of the latest equipment, materials and services used for the deposition, monitoring and characterization of coatings and thin films. Short courses and tutorials are offered.

Symposia:

- 1- Processing and characterization of hard coatings
- 2- Thermo and erosion protective coatings for use at high temperatures
- 3- Friction reducing and wear protective coatings
- 4- Optical coatings, carbon based coatings
- 5- New developments in thin film and coating technology
- 6- Coating specific characterization methods
- 7- Coating technology scale up and manufacturing.
- 8- Coatings for aerospace applications, fuel cell applications, bio-engineering and nanostructure assemblies



- **Surfex 2008**, June 3-4<sup>th</sup>, 2008 - Harrogate (North Yorkshire, UK)  
[hppt://www.surfex2008.net/](http://www.surfex2008.net/)

The UK Exhibition for the Surface Coatings, Printing Inks, Adhesives, Corrosion and Construction Communities is the ideal exhibition for any company involved in the coatings industry. Every company is welcome and is encouraged to fully participate in the biennial event. This event is really products oriented, it's possible to:

- Raise awareness of brand and product portfolio
- Launch new products and services
- Establish/renew relationships and generate business opportunities
- Promote products with existing clients in one location
- Network and entertaining customers at the Industry Dinner

- **3rd International Conference "Smart Materials, Structures and Systems (CIMTEC)**, June 8-13, 2008 - Acireale (Sicile, Italy).  
<http://www.cimteccongress.org/2008/index.asp>

Intensive research carried out worldwide for creating higher forms of materials, structures and systems by providing them with "life" functions, resulted in a relatively high level of technology readiness with several applications now emerging, demonstrating that smart materials technologies have matured well beyond the conceptual stage.

Widespread use of nanotechnology concepts and tools and availability of multiscale computation models coupled with the exponential growth of computer capability are fuelling the rate of advancement of the field. This also is increasingly taking advantage from the merging of materials science and engineering with information deriving from a deeper understanding of biological processes and from the highly effective evolutionary solutions created by nature along million years.

Symposia:

- 1- Smart Materials and micro/nanosystems
- 2- Smart optics (Materials - Devices - Applications)
- 3- Emboding intelligence in structures and integrated systems
- 4- Biomedical applications of smart materials, nanotechnology and micro/nano engineering
- 5- Mining smartness from nature (From Bio-inspired Materials to Bionic Systems)

- **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".

- **11<sup>th</sup> 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.

- **14<sup>th</sup> 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

