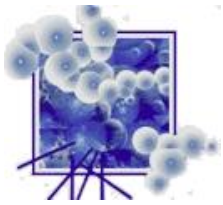
VINF
Virtual Institute of Nano Films

VINF Newsletter n°12
Fall 2010



Editorial

Summertime is vacation time for most of us. Nonetheless, VINF team has been very active and our time was mostly dedicated to coming events and research projects. We are working on the European calls published in July. We are also preparing actively the next Post-graduate Programme on Nanofilms, coming in 2011 as well as the next ECNF coming in 2012. Before these dates, we will organise at least one VINF Initiative, from our series of workshops working to build national networks in nanofilms. We also hope to welcome new members during this trimester. With fall coming, the season of events will start again. In September, VINF will be present at EVC-11 in Salamanca, Spain; and in October, we will be present at NanotechItaly 2010 in Venice. We look forward to meeting with you soon during one of these events.

The VINF Management Team

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2010: the Spanish summer?

From everywhere in the world, one of the 2010 pictures we will remember was taken on July 14 when Casillas seized the FIFA trophy and let Spain enters into the legend as one of the few nations winner of the soccer world championship. About one month earlier and closer to our business, Spain was also put into the headlight as host of the NANOfutures kick-off event in Gijon (Asturias). Though definitively less popular than soccer championship, this initiative is expected to be no less historical for the nanoscience and nanotechnology European community.

The song is known already: nanotechnology development is strategic for European industries and the lack of coordination among the different initiatives so far severally reduces the innovation efficiency. Our Network of Excellence was set-up for this very reason in 2006, and we are now continuing to work on Nanofilms research defragmentation. NANOfutures shares the same motivation on a broader field. For this reason we are pleased to announce you that VINF joined the NANOfutures network immediately after its launch. From now on, your connection with VINF will also plug you to NANOfutures European Technological Integrated Platform.

As nanotechnology is by definition multidisciplinary, it suffers from being not specific. Indeed "Nanotechnological industry" is not recognized as a whole but we may find such kind of industry in Chemical, Mechanical or Health sectors for example. Though the need for "an ETP on nano" became obvious, it made no sense to set-up another platform independent from those already existing and devoted to the different industrial fields. In order to optimize and maximize the impact of resources deployed, and to avoid duplicated, disconnected and fragmented actions, NANOfutures was designed to strongly interact with existing ETP's.

As detailed by EC head of Nanotechnology Christos Tokamanis, barriers to the nanotechnology revolution are numerous : inefficiency of technology transfer, necessity of risk assessment, cost for LCA and other H&S testing, commercial viability, gaps in policy or infrastructure… The 2005-2009 nano action plan verdict stressed that integrated, safe and responsible development of nanotechnology is the right approach. So every initiative that aims to fight research fragmentation and speed-up technological transfer is on the right path. NANOfutures is a political project intending to overcome these barriers –and VINF community can certainly help for all the matters related to coatings–.

Among the speakers who took the floor in Gijon, two very interesting comments came from Spanish scientists who spent part of their career in the USA. Director of the Center for Functional Nanomaterials (CFN) in Brookheaven, Prof. Emilio Mendez, insisted on what we usually fear as a crisis is actually a trust crisis. From his US experience, he urges European experts to be optimistic, to fill us with self confidence, to be pride about our land and heritage, to be pragmatic rather than idealistic and to prefer self reliance to government funding. This "American" attitude favors entrepreneurship and increases the number of scientific ideas reaching industrialization. According to a study reported by Industrial Research Institute in Washington, from about 1000 raw innovative ideas, only 2 will be launched into business activity and 1 of these two will be successful.

After completing a PhD in Alicante, Javier Garcia Martinez enters the MIT in 2001 for post-doctoral research. There he understood that setting up a spinoff company was common for researchers and dare the challenge to valorize his own results on zeolites. The first step is the most impressive: leaving the MIT safe and comfortable environment for a garage to be transformed into a chemical lab. Step by step, mentored by retired Prof. Larry Evans, the young entrepreneur matured the technology for industrialization and involved the necessary investors in the founding team to ensure the successful start-up of the company. Today, Rive Technology commercializes advanced technologies for petroleum refining and Javier, who is still in the board of the company, came back to Allicante as Full time Professor leading the Molecular Nanotechnology laboratory. More information on Rive Technologies on www.rivetechnology.com.

VINF research projects

With the calls published in July, the Institute is getting involved in different research project proposals. The VINF team is always eager to collaborate in new or existing projects.

In the frame of a new project, we may be in charge of the dissemination workpackage. We can organise several workshops, involving the project partners as well as external participants, to spread the latest scientific achievements of the consortium to the scientific community. We handle the regular dissemination of information about the project with our international website. The institute may also issue 2 newsletters per year. VINF can also be in charge of administrative tasks.

Let's not forget that VINF can also help your existing projects as a sub-contractor. VINF has already a great experience with European projects.

If you think VINF might be an associated partner or sub-contractor of your project, and if you might be interested in collaborating with us, please don't hesitate to contact us.

Highlight: VINF new website

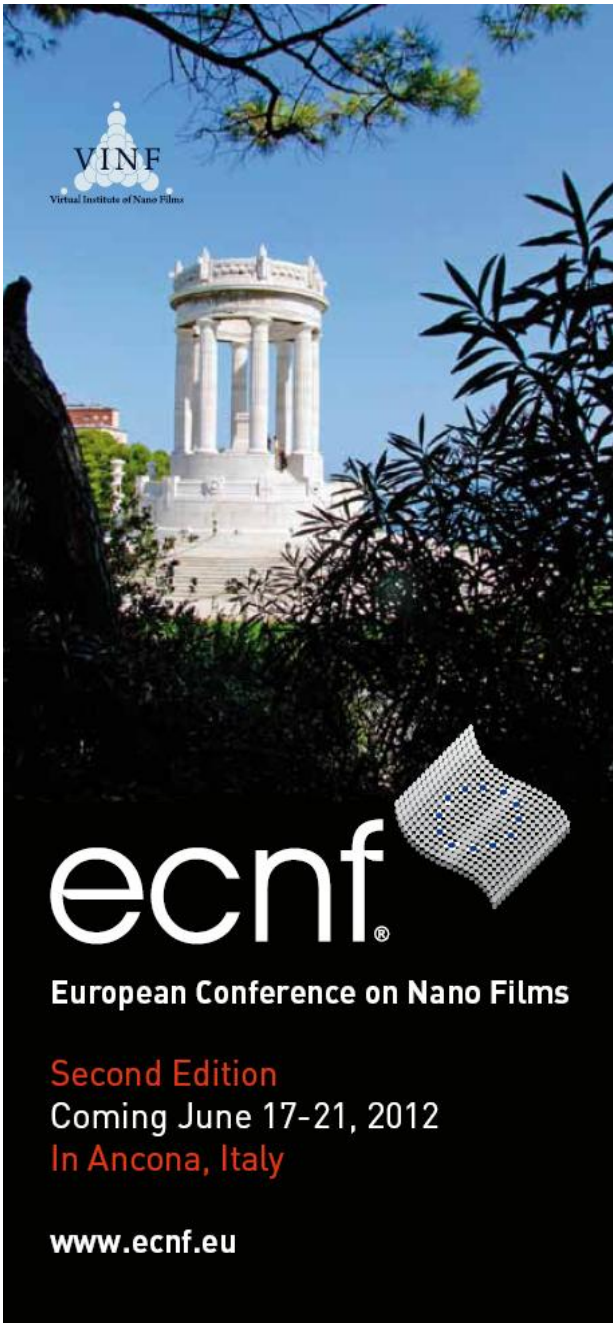
The VINF new website has been released at the end of June. Registering to VINF website is free and grants you access to resources (e.g., documents) available to registered users only. This new website is now operational and more "user-friendly" but we are still updating some pages. So, if you are looking for some info not yet updated on the website, please feel free to send us an email (info@vinf.eu).

VINF new Website: www.vinf.eu

To register: http://www.vinf.eu/page/get-involved

ECNF second edition in June 2012

The first announcement of the second European Conference on Nano Films is coming up soon and we look forward to seeing you all in Ancona, Italy in June 2012.



VINF European Post-graduate Training on Nanofilms

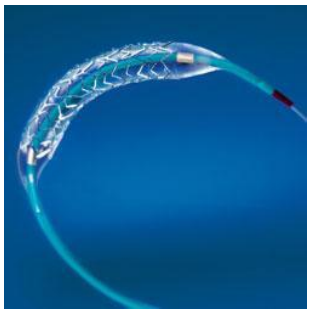
Module V

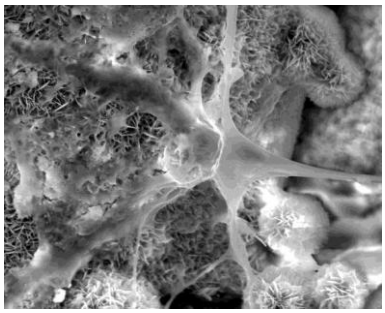
The last module of the first European Post-graduate Programme Training on Nanofilms took place in Haifa, Israel. 15 students participated to this last module.

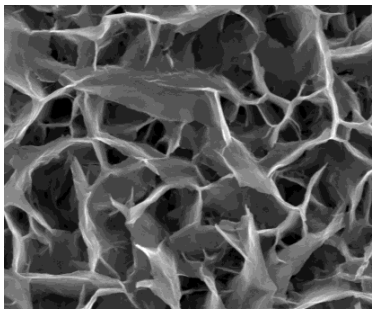
The topic of this last module of the programme was *Nanofilms for biological applications*. The courses included classroom lectures and laboratory practice.

Speakers and Topics:

Dr. R. Hauert, EMPA, Switzerland Diamond-like carbon (DLC) coatings	**Dr. P. Habibovic, Twente University, the Netherlands** Biomimetic Ca Phosphate coatings
Prof. C.N. Sukenik, Bar Ilan University, Israel Self-Assembled Monolayers (SAM)	**Prof. M. Zilberman, Tel Aviv University, Israel** Polymer based bioactive coatings
Dr. R. Brener, Technion, Israel Surface analysis	**Prof. E. Rabkin, Technion, Israel** Scanning Probe Microscopy
Prof. A. Solov'yov, Goethe University, Germany Modeling of Molecules-Surface interactions	**Prof. E. Vinogradov, ISAN, Russia** Optical spectroscopy
Prof. D. Shtansky/Dr. I. Bashkova, MISIS, Russia Biocoatings by PVD	**Dr. I. Gotman/Prof. E.Y. Gutmanas** Sol-gel silica coatings, hard wear resistant coatings







VINF New Postgraduate programme

A new series of modules will be offered beginning in 2011. The topics and location will be announced in the next newsletter.

VINF Initiative

VINF Initiative III: Building up the Community on Nanofilms in Israel, was the third edition of a series of workshops to be organised to build national networks of key players in nanofilms. Doing so, the Institute intends to facilitate communication and motivate the collaboration among players with common interest. They were 18 participants to this third edition.

Programme of VINF Initiative III: Building up the Community on Nanofilms in Israel

- Opening welcome, Prof. E.Y. Gutmanas
- VINF: Dr. F. Mirabella, General Manager
  "Description of VINF and VINF activities"
- Iscar: Dr. A. Layyous, Project Manager, R&D Materials
- Optical Components Center, Rafael: S. Joseph and Dr. O. Marcovitch
- Termica: Dr. B. Eizner and A. Shvarzman
- Solel-Siemens: E. Epshtein
- KAMAG: Dr. I. Zukerman
- Technion: Prof. E.Y. Gutmanas
- Group discussion chaired by Dr. F. Mirabella and Prof. A. Solovyov, VINF President, Goethe University, Frankfurt
- Lunch

VINF Initiative IV will take place in Venice, Italy on October 19, 2010
The speakers include Prof. S. Spigarelli (*UPM Ancona*), Ing. M. Daurù (*Lafer*), Dr. S. Luridiana (*Kenosistec*), Prof. R. D'Agostino (*Plasma Solutions*), M. Perucca (*EnviPack*), Dr. Frédéric Mirabella (*ArcelorMittal*), and Dr. A. Patelli (*Nanofab*).

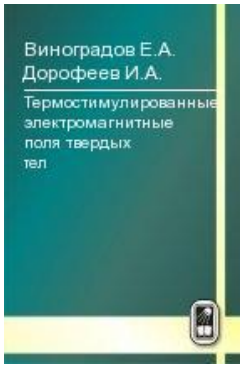
More info on the VINF website

Participant to next VINF Initiative: Lafer, Italy

This company will be present during the next VINF Initiative in Venice, Italy, on October 19, 2010. Lafer is a certified Coating Center specialized in mechanical coatings on tools, moulds and components. The steady growth achieved since 1989 (birth date of Coating Division) has allowed them to become one of the most important Italian companies in the field of PVD-CVD thin films. Since 2001, it is operating a second Coating Center in Chicago (USA). In January 2005 a new Company specialized in decorative PVD treatments and completed with galvanic plants has been established in Brescia (Italy). Beginning January 2007, Lafer started to work in the Automotive Industry.

More info: www.lafer.eu/lafer_eng/hp.shtml

Scientific highlights



E.A.Vinogradov and I.A.Dorofeyev
"Thermally stimulated electromagnetic fields from solids"

Moscow, PhysMatLit, 2010, 484 pages (in Russian) ISBN: 978-5-9221-1212-3

Summary

The monograph is devoted to the systematic presentation of the physical foundations of fluctuating electromagnetic fields from solids and their relation to the fundamental phenomena in nature. The modern theoretical models of thermally stimulated fields and various ways for description of their correlative properties are presented on the unique basis. The one-to-one relation between the spectral resonances of thermally stimulated fields of solids and polaritons as the eigenmodes of the solids is demonstrated using rich experimental data. The peculiarities of spectral properties of the propagating and evanescent waves of the unique thermally stimulated electromagnetic field from solids are investigated in detail, both by experimentally and theoretically. Experimental results on thermally stimulated electromagnetic fields are in qualitative and quantitative agreement with model calculations and theoretical expectations. The dispersion interaction between bodies, the energy transfer between bodies, the diffraction of fields characterized by different correlative properties by a hole and the properties of a quantum system nearby solids are discussed using the theory of fluctuating electromagnetic fields.

Award for career achievements for Prof. Dr. Veprek

Prof. Dr. Stan Veprek received the "Award for Career Achievements" during the Int. Conference on the Diffusion in Solids and Liquids (DSL 2010) in Paris between July 4 and 8, as recognition of his work which he has done in several different areas of the science.

Job offers

1. Research engineer in Surface modification-functionalisation

ArcelorMittal

Function:	Research & Development
Business Unit:	Global R&D
Country:	Belgium
Site:	Gent
Vacancy Duration:	Permanent
Prefered Start Date:	Immediate
Edu/Qualification:	PhD
Subject:	Chemical engineering
Language:	Proficiency Level, Dutch Advanced
HR Contact:	Daniele QUANTIN

Job Details & Key Objectives

In this function the impact of inorganic and organic surface modifications on the energy consumption and energy house-hold of different end-use appplications in the industry market(appliances, teletronics, ...) is being studied. The characterisation of existing sytems will be used to define and develop new surface treatments for optimised energy consumption and conversion. A considerable part will be dedicated also to the elaboration and improvement of the test methodology

Minimum Requirements

- Specific experience in inorganic surface modification, passivation and conversion treatments
- Hands-on experience in surface analysis and characterisation with FT-IR, more specifically for inorganic surface treatments
- Experience with and/or special interest in energy conversion and energy saving calculations
- Mature personality with a healthy level of independency, dedicated to industrial R&D striving for accuracy and showing scientific proud and honesty
- Good communication skills towards team members, customers, ArcelorMittal group, etc.

2. Applications Development Engineer Silanes

Momentive Performance Materials GmbH

The focus for the position is on Silanes in Coatings:

- Working closely with Marketing and Commercial functions and with Technology Manager to identify new business opportunities to drive new growth for Momentive's Coating Additives business
- Creative input to the design of new functional silanes and silicones that provide added value in the protective coatings market. This should include the definition of clear technical targets and identification of practical routes to deliver the desired end-benefit
- Planning and execution of laboratory projects, from translation of customer needs through to assistance with the scale-up and commercialization of new products
- Establishing formulation guidelines around new high performance silane/silicone additives based on a deep understanding of the key chemical and physical interactions in Coatings formulations and knowledge of the end applications
- Development and application of world-class evaluation and characterization methods in collaboration with industry and academic leaders and with global customers
- Close collaboration with global product and application development teams as well as with marketing and business functions
- Providing professional customer support related to the use of new products, including travel to customer sites as needed
- Development of solid understanding of relevant patent landscape and effective patenting of proprietary technology and processes.

Your qualifications:

- BS/MS degree in Chemistry or Polymer Science, Material Science or Chemical Engineering, adv. degree strongly preferred and 5-10 Years of experience in the coatings industry in a product development role
- Working knowledge of the key chemical and physical interactions influencing properties and performance of a range of protective and industrial maintenance coatings; strong grounding in colloid science
- Demonstrated ability to prioritize and handle multiple projects simultaneously and work in a cross-functional team environment with strong customer focus, demonstrated track record of high academic achievement and creative independent research.
- Demonstrated skills in materials and surface characterization techniques
- Working knowledge of organic or synthetic polymer chemistry and material science computational chemistry
- Working knowledge of standard PC applications, proficient in basic statistics and Design of Experiment (DOE)
- Excellent oral and written communications skills in English
- Self-motivated individual with high level of creativity and technical curiosity

What they have to offer:

- International environment
- Wide scope of responsibilities and good opportunities for personal growth
- Flat hierarchy, open-door-policy and informal culture
- Highly-complex stages of production with highly-developed chemical materials

To apply for this job please send your application to human.resources@momentive.com

VINF forthcoming events

Shall you need more information on our next events,
please feel free to contact us or check our website: www.vinf.eu

October 19, 2010 **VINF Initiative V: Building up the Italian Community on Nano Films**
This fifth edition will be held in Venice, Italy

June 17-21, 2012 **European Conference on Nano Films, second edition**
This event will be held in Ancona, Italy

Events with confirmed VINF team attendees

The main aim of the 11th European Vacuum Conference (EVC-11) is to join scientist and engineers of the vacuum and application field from the European Community as well from other countries to discuss the latest state of the art in different topics of the conference from the previous meeting held in Balaton Lake, Hungary.

The Conference is held jointly with the 8th Iberian Vacuum Meeting, the join biannual meeting of the SPANISH VACUUM SOCIETY, ASEVA, and PORTUGUESE VACUUM SOCIETY, SOPORVAC, started in 1989 in Braga, Portugal, and the 6th European Topical Conference on Hard Coatings, initiate in Alicante, Spain in 1991.

More info: www.icmm.csic.es/aseva/evc11.html

5th NANOSMAT conference (NANOSMAT-5)
October 19-21, 2010
Reims, France

NANOSMAT-5 will foster the gathering of talented people from around the world to exchange ideas and information. The conference will thereby provide a platform for interactions between researchers; scientists and engineers from industry, research laboratories and academia, and it will feature state-of-the-art developments in all aspects of processing, characterisation and applications of nanostructured materials.

More info: www.nanosmat-conference.com/index.html

NanotechItaly 2010
October 20-22, 2010
Venice, Italy

NanotechItaly 2010, is an International Conference jointly organised by AIRI/Nanotec IT, the National Research Council (CNR) and Veneto Nanotech, to highlight, with the contribution of the most important Italian players in the field and renowned experts from abroad, situation and perspectives of nanotechnology.

Abstracts due May 24th 2010

More info: www.nanotec.it/eng/index_eng.html

Other forthcoming events

ECOSS 27
August 29-September 3, 2010
Groningen, The Netherlands

More info: www.ecoss27.eu

The 2nd International Conference on Nanomechanics and Nanocomposites
October 10-13, 2010 in Beijing, China

More info: http://icncm.escience.cn/dct