

# Russia Experience in the Development of European Research and Educational Infrastructure

in the frame of the FP6 Project EXCELL

“To Overcome the Fragmentation of European Research  
in the Multifunctional Thin Films”



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Moscow State Institute of Steel and Alloys

February 22, 2007

## Consortium Members

- Arcelor Research Industry, Liege - Coordinator
- Università Politecnica delle Marche, Italy
- University of Nottingham, UK
- Free University of Brussels, Belgium
- Moscow State Institute of Steel and Alloys (Technological University), Russia
- Institute of Spectroscopy of the Russian Academy of Science, Russia
- SH SISTEMI s.r.l., Italy
- Technion, Israel
- Instituto de Ciencia de Materiales de Sevilla, Spain
- Johann Wolfgang Goethe University, Germany
- Chemical Research Center of the Hungarian Academy of Sciences, Hungary
- Associazione Piccola Impresa, Italy
- Cambridge University, UK



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## What is a main problem? Fragmentation ....

It is well-known that European research, training and education in the area of nano-composite multifunctional films are fragmented.

For instance, some European teams do not have necessary tools to conduct quality research whilst other groups are fully equipped but are lacking necessary expertise.

Some teams, mostly at the large national Universities, have many students, whereas high-tech equipment is usually located at the advanced research centers and research institutes.

It is usual practice that national educational and Ph.D programs are under supervision of the local Universities and this practice not always well efficient.



## Towards Virtual Institute on Multifunctional Films

The network aims to address the current fragmentation of European research in multifunctional films by creating a virtual research institute and by organizing a European school for training in nano-films.

EXCELL will coordinate and focus excellent research in nano-technologies, by creating a **Virtual Institute for Multi-Functional Nano-Films (VINF)**.

VINF will become a world driving force in doing advanced research on multifunctional films. Secondly, the Institute will establish a permanent European School of nanofilms, to train scientists and to encourage best practice in the exploitation of results.

Thirdly, whilst EXCELL is primarily a basic research network, it will benefit the exploitation of new technologies to address important social objectives, including improved safety, quality of life, gender equality, EU standardisation, etc.



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## EXCELL instruments

- Training Course: short course of lectures and practical training in specific field for young scientists and Ph.D students
- Summer School: course of lectures for young scientists and Ph.D students
- Advanced Research Workshop (ARW): Review the state-of-the-art in the certain field by EXCELL members and invited world leaders. Attraction of Ph.D students.
- International Congress: International forum which crown two-year EXCELL stage
- Industrial Oriented Workshop: Special meeting and exhibition for dissemination and spreading of EXCELL results among industrial partners

## Training and education of young scientists and Ph.D students at different levels

- Visits of Ph.D students to partner institutions for training and education
- Attending of training courses
- Attending of summer schools
- Attending of ARW and International Congresses under EXCELL

## Training and improvement qualification of researchers

- Visits of young researchers to partner institutions
- Basic courses for manufacturers
- Advanced training for nano-technology
- Accumulation of critical mass of knowledge (EXCELL database platform)



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# ADVANCED RESEARCH WORKSHOP

Hard tribological coatings with other enhanced characteristics  
(low friction, corrosion- and oxidation resistance)

**Moscow State Institute of Steel and Alloys  
(Technological University)**  
February 19-22, 2007



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February 22, 2007