

COMMUNICATION FROM THE COMMISSION OF THE EUROPEAN COMMUNITIES Towards a European strategy for nanotechnology

EXECUTIVE SUMMARY

□ Nanosciences and nanotechnologies are new approaches to research and development (R&D) that aim to control the fundamental structure and behaviour of matter at the level of atoms and molecules. These fields open up the possibility of understanding new phenomena and producing new properties that can be utilised at the micro- and macro-scale. Applications of nanotechnology are emerging and will impact on the life of every citizen.

□ Over the last decade the European Union (EU) has established a strong knowledge base in nanosciences. Our ability to maintain this position is in doubt since the EU is investing proportionately less than its main competitors and lacks world-class infrastructure ("poles of excellence") that muster the necessary critical mass. This is despite the fact that investment in national EU programmes is growing in a rapid but independent way.

□ European excellence in nanosciences must finally be translated into commercially viable products and processes. Nanotechnology is emerging as one of the most promising and rapidly expanding fields of R&D to provide new impetus towards the dynamic knowledge-based objectives of the Lisbon process. It is crucial, however, that a favourable environment for innovation is created, in particular, for small and medium sized enterprises (SMEs).

□ Nanotechnology must be developed in a safe and responsible manner. Ethical principles must be adhered to and potential health, safety or environmental risks scientifically studied, also in order to prepare for possible regulation. Societal impacts need to be examined and taken into account. Dialogue with the public is essential to focus attention on issues of real concern rather than "science fiction" scenarios.

□ This Communication proposes actions as part of an integrated approach to maintain and strengthen European R&D in nanosciences and nanotechnologies. It considers the issues that are important to ensure the creation and exploitation of the knowledge generated via R&D for the benefit of society. In this context, the time is right for launching a debate at an institutional-level in view of coherent action to:

- ♦ increase investment and coordination of R&D to reinforce the industrial exploitation of nanotechnologies whilst maintaining scientific excellence and competition;
- ♦ develop world-class competitive R&D infrastructure ("poles of excellence") that take into account the needs of both industry and research organisations;
- ♦ promote the interdisciplinary education and training of research personnel together with a stronger entrepreneurial mindset;
- ♦ ensure favourable conditions for technology transfer and innovation to ensure that European R&D excellence is translated into wealth-generating products and processes;
- ♦ integrate societal considerations into the R&D process at an early stage;
- ♦ address any potential public health, safety, environmental and consumer risks upfront by generating the data needed for risk assessment, integrating risk assessment into every step of the life cycle of nanotechnology-based products, and adapting existing methodologies and, as necessary, developing novel ones;
- ♦ complement the above actions with appropriate cooperation and initiatives at international level.

The actions described in this Communication are also in line with the European Councils of Lisbon 2000, declaring the commitment to develop a dynamic knowledge-based economy and society, of Gothenburg 2001, aiming at sustainable development, and of Barcelona 2002, targeting 3% of GDP funding for research¹. It also contributes towards the development of the European Research Area (ERA) 2 and profits from it.

The entire Communication is published on web, at www.cordis.lu/nanotechnology.

BRIDGE: The new FP 6 Concerted Action has the **role of a bridge between EUROPRACTICE in FP5 and FP6**. The first BRIDGE meeting will take place in UK, in November 2004, in conjunction with the EUROPRACTICE general meeting (see <http://www.europpractice.com>).

The **IMT-Bucharest main tasks** are:

- To support the identification and screening of participants from the Associated and Candidate Countries, including the new member states for EUROPRACTICE activities and projects;
 - To act on these means and effect real and lasting change in relationships between the West and the Eastern countries;
 - To prepare partnerships for future EUROPRACTICE activities.
- The main contractor is **Rutherford Appleton Laboratory**, Oxfordshire, UK. *IMT-Bucharest, as a subcontractor*, will cover the following countries: Bulgaria, Poland, Romania and Hungary, while the other eight Eastern countries will be covered by BIT, Estonia (contact person: **Andrus Tasa**, E-mail: atasa@ebc.ee). *Contact person for IMT-Bucharest:* **Carmen Moldovan** (E-mail: bridge@imt.ro).

The western moderators for IMT and BIT are: **Rob Turner** (KBIC), **Geraldine Andrieux** (Yole Developpement) and **Patric Salomon** (4m2c)

NEXUSPLUS: is an FP6-IST funded project, with duration of four years (2004-2008) intended to maximise the exploitation potential of technologies, processes and products that are developed in both IST and NMP (Growth) Integrated Projects (IPs) and Networks of Excellence (NoEs) in the area of Micro and nanosystems. It will also identify potential SME and Newly Associated States (NAS) partners and provide entry points for them to join existing and future IPs and NoEs. NEXUSPLUS represents the further development of the NEXUS project (<http://www.nexus-mems.com/>).

The principal contractor for NEXUSPLUS is The NEXUS Association, Grenoble. IMT-Bucharest and IET, Poland are sub-contractors for the Eastern countries, including the new member states and the candidate states (Romania and Bulgaria).

IMT and IET roles are: identifying new partners; registering the new partners in the NEXUSPLUS databases; organizing meetings and presentations at ACC Conferences; bringing new partners from the Eastern countries, which will be interested and capable to work in consortiums for FP6 proposals;

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The first NEXUSPLUS meeting will be held in Brussels, June 14th-15th, 2004.

Micro and NanoTechnology Bulletin is published quarterly by IMT-Bucharest, Romania (www.imt.ro). This Bulletin, originally intended to publicize **results of Romanian researchers in the micro and nanotechnology (MNT) field**, is extending its coverage since 2004 to Eastern Europe.

The purpose is to contribute to a better communication of MNT scientific communities from Eastern Europe to the rest of the world. The enlargement of the European is an important circumstance of this time period. Some projects financed by the European Commission in the 6th Framework Programme are supporting publication in this Bulletin.

MNT Bulletin is distributed free of charge to interested organisations and individuals. The Bulletin is also available on the web page: www.imt.ro/mnt. Contributions and correspondence may be sent to mnt@imt.ro.