

"Research 2002" conference: EU science & technology programme on the starting blocks Brussels, 11-12-13 November 2002

On Monday November 11th, in Brussels, European Research Commissioner Philippe Busquin and Belgian Prime Minister Guy Verhofstadt opened the biggest conference on EU research ever organised in Europe. Enterprise and Information Society Commissioner Erkki Liikanen also participated. The three-day event attracted more than 8,000 participants and 200 speakers, including a line-up of 20 ministers, 3 Nobel laureates and scores of business leaders. It marked the launch of the new EU Research Framework Programme (FP6 2003-2006), preceding the first calls for proposals to be published in the next few weeks. With a budget of EUR 17.5 billion, FP6 is one of the biggest research programmes in the world. It will support projects in selected strategic areas and foster the creation of the European Research Area, a true internal market for knowledge and science.

The conference presented not only FP6, but also the state-of-the-art technology and cutting-edge research projects. But it also offered networking opportunities to leading European scientists and top business executives. Matchmaking is key in fostering lasting contacts and co-operation opportunities: European research



A group from the delegation of the Ministry of Education and Research before the stand of Romania at the Conference in Brussels

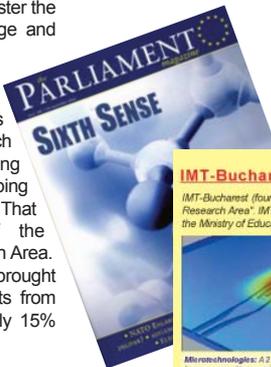
is about pooling excellence and helping brains join forces. That is the spirit of the European Research Area.

The event brought together participants from 61 countries. Nearly 15% of them came from Candidate Countries, equal partners with EU Member States in FP6 - more than one year in advance on overall enlarge-

ment schedule. 142 research projects and 65 research organisations were on exhibition. Over 300 journalists attended the conference. 81 scientific events were organised by the participants themselves.



Lobby:



Excerpt with the *IMT* offer from the issue of the "Parliament Magazine", launched in the first conference day. A full page of this issue was dedicated to MEMSWAVE project, finalist of the Descartes prize

IMT-Bucharest as a bridge-head for the integration in ERA

IMT-Bucharest (founded in 1993) may act as a bridge-head for the integration of the human resources of Romania in the "European Research Area". IMT-Bucharest (since 1996 - the National Institute for Research and Development in Microtechnologies, coordinated by the Ministry of Education and Research) is already acting as a hub of national activities in the field of micro and nanotechnologies.

What makes IMT-Bucharest attractive for an European partnership? This institute (the first with this profile in Eastern Europe) is the main actor in microtechnologies in Romania (with microsystems promoted by national programmes since 1983, also including nanotechnologies since 2000). The back-bone of IMT is provided by three centres of excellence: in RF MEMS (Dr. Alexandru Miller, alexm@imt.ro), microoptics and microphotonics (Dr. Dana-Mihaela Cristea, dmcris@imt.ro) and in nanotechnology (Dr. Irena Kluge, ikluge@imt.ro). Its European dimension is confirmed by the nomination for the Descartes Prize 2002 of MEMSWAVE (this is a European project in IT, coordinated by IMT-Bucharest, the only one with partners from associate countries). IMT has a flexible management (project-based and knowledge-oriented). A detail: the executive management is mostly provided by women! IMT has an up-to-date electronic communication infrastructure (renewed in 2002), and it also uses intensively traditional means for knowledge dissemination, to enhance its capabilities, IMT is also promoting both a "horizontal integration" (providing multidisciplinary research in consortia), and "vertical integration", by grouping in the "Centre of Microfabrication" to be developed as a technological park activities from training to production. This institute is the promoter and the main actor of a number of pilot activities, developed for the first time in Romania using the European model, such as: scientific networks, centres of services, virtual centres of excellence. At the same time, as the core of a network of networks, IMT-Bucharest is an excellent "entry-point" to the research in micro and nanotechnologies in Romania.

Microtechnologies: A 2 micrometers thin GaAs membrane supporting a millimeter wave (170GHz) filter structure designed for high performance communication systems (MEMSWAVE project, coordinator for the Descartes Prize 2002, research excellence in European cooperation).
Computer-aided design: IMT-Bucharest (Romania) project coordinator.
Manufacture: FORTH-Heraklion (Greece).
Microwave measurements: ICCOM Limoges (France).
White-light interferometric deflective analysis (this is a new): Uppsala University (Sweden).
Nanotechnologies: Pyramidal nanoelectrodes for electrochemical cells (one nanoelectrode on top has dimensions between 70 and 500 nm), with applications in: environment pollution control, medicine, biology and biochemistry, scanning electrochemical microscopy.
Design and novel technology: IMT-Bucharest (Romania) Technological development and fabrication: IM-Waritz (Germany) under FP5-GENESIS project (financed by IEF).

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Thematic areas on micro and nanotechnologies in the first call Launched in December 17th 2002 (see www.cordis.lu for details)

Priority 2: Information Society Technology

Pushing the limits of CMOS and preparing for post-CMOS

Objective: To develop, ahead of the ITRS international roadmap, semiconductor devices shrunk by an order of magnitude down to the 5 nm size, and alternative devices for the post-CMOS era. Research will also aim at enabling the design in-time and at cost, of reliable 1 billion gate systems-on-chip or systems-in-package, improving productivity by a factor of 10 by 2010. This will help prepare for the electronic components of 2010 and beyond.

Micro and nano systems

Objective: To improve the cost-efficiency, performance and functionality of micro and nano-systems and to increase the level of integration and miniaturisation allowing for improved interfacing with their surrounding and with networked services and systems. This should foster their integration into a wide range of intelligent products and applications

For the Priority 2, two calls were launched in December 17th:

Call 1 - publication 17/12 2002, closing 24/4 2003 - would have an indicative budget of around 1070 MEuro. The call follows a one stage procedure

A joint call on "manufacturing, products and services engineering in 2010 is foreseen with thematic Priority 3. The call will follow a two stage procedure. The publication will be on 17/12 2002, the deadline for the first stage (short proposals) is 24/4/2003 and the deadline for the second stage (full proposals) is 16/9 2002. The call would have an indicative budget of 25 MEuro.

Priority 3 Nano-technologies and nano-sciences, knowledge-based multifunctional materials, and new production processes and devices

Nanotechnologies and nanosciences

The objective is twofold: to promote the creation of an RTD-intensive European nanotechnology related industry, and to promote the uptake of nanotechnologies in existing industrial sectors.

Subjects and selected topics for 2003:

- Long-term interdisciplinary research into understanding phenomena, mastering processes and developing research tools
 - Expanding knowledge in size-dependent phenomena
 - Self-organisation and self-assembling
 - Molecular and bio-molecular mechanisms and engines
- Nano-biotechnologies
 - Interfaces between biological and non biological systems
- Nano-metre-scale engineering techniques to create materials and components
 - Engineering techniques for nanotubes and related systems
- Development of handling and control devices and instruments
 - Handling and control instrumentation at the level of single atoms or

molecules and/or < 10 nm

- Applications in areas such as health and medical systems, chemistry, energy, optics, food and the environment

- Roadmaps for nanotechnology

Integration of nanotechnologies, new materials, and new production technologies for improved security and quality of life

This area has been added to the three first areas, as defined in the specific programme, due to the "integrating" challenge of the expected output and due also to the number of Eols received on the subject. A specific target should indeed be to put materials science and advanced industrial technologies at the service of health. In this context, integration of technological developments, and in particular of the new generation of smart and hybrid materials interacting with their surrounding and related manufacturing equipment, is bringing huge potential for the development of sensors, actuators and devices, leading to a greater security and safety of people and the environment.

Selected Topics for 2003:

- Systems, instruments and equipment for better diagnosis and/or surgery, including for remote operations
- Tissue engineering, new biomimetic and bio-hybrid systems
- New generation of sensors, actuators and systems for health, safety and security of people and environment

For the Priority 3, three calls were launched in December 2002:

The **first call** (call 3.a), for an indicative funding of 400 M€, opened in the fields identified before. An indicative budget of 260 M€ will be devoted to the new instruments. A budget of 140 M€ indicative will be devoted to other projects (STREP, CA, SSA). Special attention will be given to INCO activities. There will be different closing dates: (1) for the new instruments the closing date for receipt of first stage proposals is on **March 6, 2003, 17.00, Brussels time**; for the second stage proposals on **June 26, 2003, at 17.00, Brussels time**. (2) for the other instruments, the closing date for receipt of full proposals is on **April 10, 2003, 17.00, Brussels time**. Co-ordination will be ensured with Priority 2 in the field of "micro and nanosystems".

The **second call**, jointly with **Priority 2** in the field of "manufacturing, products and service engineering in 2010". The indicative funding from Priority 3 is of 35 M€, of which 25 M€ for the new instruments. Special attention will be given to IMS. The closing date for receipt of full proposals (CA, SSA) and first stage proposals (new instruments) will be **April 24, 2003, 17.00, Brussels time**; for the second stage proposals, and again for full proposals (CA, SSA), on **September 16, 2003, at 17.00, Brussels time**.

The **third call** (call 3.c), targeting SMEs Integrated Projects, with an indicative funding of 40 M€. The deadline for the first stage proposals will be on **April 10, 2003, 17.00, Brussels time**, and for the second stage proposals on **September 3, 2003, at 17.00, Brussels time**.