# Participation of IMT – Bucharest in FP7 research projects

## Carbon nAnotube Technology for High-speed nExt-geneRation nano-InterconNEcts

**Contract no. 216215, STREP, FP7-ICT-2007-1, 2008-2010**


**CATHERINE** will develop an innovative cost-effective and reliable technological solution for high-performance next-generation nano-interconnects beyond the limit of current technology.

The new approach, which exploits the carbon nanotube (CNT) technology, will permit to realize interconnects with high-transmission speed, high current density, exceptional mechanical and thermal properties, optimum signal and power integrity. CATHERINE project is focused on delivering cost-effective solution to the ITRS roadmap for late CMOS and post-CMOS systems, requiring continuous miniaturization of electrical and electronic devices (down to 22 nm node in 2011), high integration level, increasing working frequency and power density, reduction of global interconnection delay.

Final CATHERINE products will be:

- Integrated data-base for nano-interconnect design;
- Proof-of-concept nano-interconnect.

**www.catherineproject.eu**

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**PARTNERS:**

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- University of Latvia, Institute for SolidState Physics
- National Institute for Research and Development in Microtechnologies, Microphysical Characterisation and Simulation Group
- Swedish Defence Research Agency, Department of Sensor Technology
- Italian National Institute of Nuclear Physics, Laboratori Nazionali di Frascati
- Philips Electronics Nederland B.V.
- Smoltek

The expected results of CATHERINE are then summarized by the following points:

- Definition of all causal relations within the design-chain "microstructure characteristics – fabrication process – functional properties";
- Development of multiscale multiphysics simulation models for the prediction of the multifunctional performance of the interconnect and for the EMC analysis;
- Development of electromagnetic and multifunctional test procedures and experimental characterization methods;
- Manufacturing and testing of proof-of-concept samples of nano-interconnects at laboratory level.