

# Hungarian participation in the Network of Excellence ISIS

MÁRK CSÖRNYEI

*Department of Broadband Infocommunication and Electromagnetic Theory,  
Budapest University of Technology and Economics*



*The Optical-Microwave Telecommunication Laboratory at the Department of Broadband Infocommunication and Electromagnetic Theory of the Budapest University of Technology and Economics has participated in several successful EU projects during the last couple of years. Recently the laboratory is involved in the IST-ISIS project which is a Network of Excellence supported by the Sixth Framework Programme for Research and Technological Development (FP6) of the European Union.*

The project acronym stands for **I**nfrastructures for broadband access in wireless/photronics and **I**ntegration of **S**trength in Europe. ISIS integrates the research activities of 19 organisations from 12 different countries and aims to strengthen European scientific and technological excellence in low cost optical solutions for broadband access, and the merging of wireless and photonic technologies.

The project addresses broadband analogue and digital communication systems like Fibre-to-the-Home (FTTH), the contribution of optical technologies (in the domain of microwave and millimetre-wave photonics) to systems for future fixed and mobile broadband access, low-cost access and edge network equipments, together with advanced wireless sensor network technologies both in microwave and millimetre-wave bands.

Besides scientific work, the cooperation includes significant integrating mechanisms such as organisations of training courses, summer schools, workshops, student and researcher exchanges and development of joint research platforms and tools. On the one hand these events allow faster and more effective penetration of the latest research results into the university education, on the other hand strong, useful contacts and relationships are created between the different European research organisations, which can end up in possible future joint projects and cooperation.

After two years of work one of the most important tasks of the last project period is to ensure the sustain-

ability of research results, aiming at industrial applications in the covered scientific area by opening of photonic-wireless research platforms and test laboratories for European small and medium size enterprises (SME).

More information is available at the project home page: [www.ist-isis.org](http://www.ist-isis.org).

The Optical-Microwave Telecommunication Laboratory of the Budapest University of Technology and Economics has contributed to the research work of the project by optical network analysis for optimizing subcarrier multiplexed HDTV transmission over the band of 10 Gbps baseband optical transmission and by establishing an IEEE 802.15.4 ZigBee Wireless Sensor Network. Considering the merging of wireless and photonic technologies the main field of research work is now being focused on optical crossconnects between subnetworks of wireless sensor systems. In this case the optical fibre based communication operates as an extension of the wireless network, and thus it enables the remote monitoring of the network or just the substitution of the radio link in case of high wall attenuations in in-door environment.

The research results of the ISIS project have been published in international journal papers and conference proceedings and this publishing activity will hopefully allow fruitful joint research activities in the future, both on national and international level.