P20: Institute of Communication and Computer Systems/National Technical University of Athens - ICCS/NTUA (Greece)

Description of expertise & activities

The Institute of Communications and Computer Systems (ICCS) is a non profit Academic Research Body established in 1989 by the Hellenic Ministry of Education in order to carry research and development activities in the fields of all diverse aspects of telecommunications , computer systems and techniques and their application in a variety of areas such as transceivers, satellite and wireless communications, optical communications, neural networks, systems, software and hardware engineering, multimedia applications, transport applications, control systems, robotics and biomedical engineering. ICCS is associated with the School of Electrical and Computer Engineering (SECE) of the National Technical University of Athens (NTUA) and is being supervised by the Hellenic Ministry of Education.

The personnel of ICCS consists of a number of Research scientists and more than 500 Associate scientists (including PhD students). The research carried out in the institute is substantially supported by SECE University Professors. ICCS is one of the most active research institutes in European co-funded research activities and has been the project manager of many EU projects in various programs (e.g. EC, ISIS, RACE II, ESPRIT, IES, ACTS, INFOSEC, BRITE-EURAM, STRIDE, MIP-Informatics, Telematic Applications, IST, GROWTH, 6th FW etc) in all of the above mentioned research areas.

ICCS/NTUA will be represented in BONE by the Photonic Communications Research Laboratory (PCRL). Currently the group is lead by Professor Hercules Avramopoulos and consists of 5 Senior Researchers and 9 PhD students. PCRL primary expertise is on the design and implementation of all-optical switching and routing schemes for high data-rate optical transmission and networking, covering theoretical work, design and implementation of optical subsystems to demonstrate novel switching concepts and structures for all-optical burst and packet switching networks. Other areas of expertise include the design and development of high speed OTDM and DWDM optical transmitters, as well as novel node and network architectures based on hybrid OTDM/WDM solutions. The group has been actively involved in European research through IST projects (MULTIWAVE, LASAGNE, MUFINS, DAVID, e-Photon/ONe) and in ESPRIT DO-ALL project.

Tasks within BONE

WP14	Design and evaluation of optical node subsystems
WP15	Investigation and development of cost-effective 100 Gb/s DWDM laser sources
WP22	Design and evaluation of fast reconfigurable switching solutions that meet the high switching demands of networks in motion
WP25	Study and development of optical interconnection architectures

Key personnel

Prof. Hercules Avramopoulos is currently heading the Photonic Communications Research Laboratory of the National Technical University of Athens (NTUA). From 1989 to 1993 he worked in the Digital Optics Research Department of AT&T Bell Laboratories, Holmdel, NJ, USA. His primary research interests have centered on the demonstration of novel concepts in photonic technologies for telecommunications. To this end he has worked on pulse generation, amplification and transmission in optical fibers as well as on a large number of laser and amplifier systems for a variety of applications. For the past 10 years he has worked on ultra-high speed, bitwise, all-optical, logic circuits and he has been interested to demonstrate their feasibility as a commercially viable technology for the telecommunications industry.

Dr. Nikos Pleros obtained the Diploma of Electrical & Computer Engineering and the PhD degree in Electrical & Computer Engineering in 2000 and 2004, respectively, both from the National Technical University of Athens (NTUA), Greece. He is now a research associate in the Photonics Communications Research Laboratory (PCRL). His research is primarily concerned with the theoretical investigation, the development and the demonstration of novel all-optical subsystems for high data-rate optical packet- and burst-switched networks and for all-optical signal processing applications. Dr. Pleros has published more than 30 articles in archival journal publications and major conference proceedings.

Dimitrios Apostolopoulos graduated from the Electrical & Computer Engineering Department of the National Technical University of Athens in 2004 where he is currently working towards the PhD degree at the Photonic Communications Research Laboratory. He has been actively involved in various European-level projects, such as IST MUFINS, IST LASAGNE and IST e-Photon/ONe+. Mr. Apostolopoulos is an author or co-author of more than 15 papers in international journals and conferences.