P36: TUE (The Netherlands)

Description of expertise & activities

The Electro-Optical Communication Systems (ECO) group is part of the department of Electrical Engineering at Eindhoven University of Technology. It is a main partner in the interfacultary institute COBRA – Communication technology: Basic Research and Applications – which performs research in the area of broadband telecommunication techniques, encompassing optical communication as well as radio communication. The ECO group focuses its research on optical communication system techniques, ranging from very high speed long range transmission links, ultra-fast (all-)optical packet switching nodes, to multi-service flexible access and in-building networks. Members of the ECO group have initiated, managed and participated in many EC projects (in RACE, ACTS, IST FP5 and FP6), in the areas of access and short-range networks, optical packet-switched networks, and very high capacity long reach networks. ECO is also a leading partner in several national projects in the area of access and in-building networks, and in optical signal processing for packet routing. Currently the ECO group has 30 members, including 7 (full/associate/assistant) professors and 4 postdocs.

Tasks within BONE

WP01	Short courses
WP13	Dynamic network reconfiguration, radio-over-fibre
WP14	All-optical packet switching, ultra-fast optical signal processing
WP15	1300 nm high-speed transmission, OTDM techniques
WP16	WP leadership; studies on fibre-wireless, multimode fibre in-building network techniques
WP23	Optical CDMA, optical personal networks

Key personnel

Ton Koonen is since 2001 a full professor at the COBRA Institute at Eindhoven University of Technology in the Netherlands, and since 2004 chairman of the Electro-Optical Communication Systems group, embedded in the COBRA institute. Prior to that, he spent more than 20 years at Bell Labs in Lucent Technologies as a technical manager of applied research. He is a Bell Labs Fellow (1999) and an IEEE Fellow (2007). Next to his industrial position, he has been a part-time professor at Twente University from 1991 to 2000. His main interests are currently in broadband fibre access and in-building networks. He has initiated and led several European (ACTS, FP5) and national R&D projects in the access area, and on optical packet routing in metro networks. Presently, he is involved in a number of access/in-home projects in the Dutch Freeband programme, in the Dutch IOP Generieke Communicatie programme, and in the European FP6 IST Broadband for All programme (MUSE, e-Photon/ONe+, POF-ALL). He (co-)authored over 250 journal and conference papers, and 4 book chapters.

Huug De Waardt is since 1995 an associate professor in the Electro-Optical Communication Systems group at Eindhoven University of Technology, embedded in the COBRA institute. From 1981 to 1994, he has been with KPN Research laboratories. He participated in several projects in the ACTS and IST programmes, most recently in the FP5 project FASHION. He is the project leader of the Dutch Freeband Broadband Photonic Access project. His current interests are in high-capacity optical data transport networks. He (co-)authored over 150 journal and conference papers.

Harm Dorren is an associate professor in the Electro-Optical Communication Systems group at Eindhoven University of Technology, embedded in the COBRA institute. He started as a postdoc in the ECO group in 1996. He was also with KPN Research on a part-time basis. In both positions he was involved on research on wavelength division multiplexing network management. Presently, he works as a project leader on research on all-optical signal processing, optical packet switching and ultrafast carrier dynamics in semiconductor materials. In 2002 he was a visiting researcher at the National Institute of Industrial Science and Technology (AIST) in Tsukuba in Japan. Since March 2007, he is the scientific director of the COBRA institute. He (co-)authored over 170 journal and conference papers.

Eduward Tangdiongga joined the ECO group in 1994, and in 2001 obtained a PhD on the topic of crosstalk performance of multi-wavelength optical cross-connects. From April 2001 till December 2003 he worked on 160 Gbit/s all-optical add-drop switching and all-optical 10 and 40 GHz subharmonic clock recovery in the FP5 FASHION project. In 2005 he had a sabbatical leave at Fujitsu Research Labs in Japan working on the topic of pulse compression using nonlinear fibers and nonlinear switching using quantum-dot semiconductor optical amplifiers.He is currently working as assistant professor in the ECO group in the field of access and short-to-medium range optical networks.