P08: COM (Denmark)

Description of expertise & activities

The research at COM•DTU encompasses a broad view of today's telecom research, ranging from nanotechnology at one end to convergence between different communication services at the other.

The Networks Competence Area deals with all aspects of networks. "Networks" means all communication systems above point to point (link) level. The area deals with a variety of subjects such as networks architectures and network concepts, design of network nodes, protocols and dimensioning of networks. All types of transmission are considered, from high speed optical networks in the core network to wireless networks (mobile networks). The Internet and the IP protocol are of course essential for the work.

The wide scope reflects that the Network Competence Area represents the "glue" in telecommunications and includes both core and access networks as well as the home network and its terminals. A holistic approach is taken, covering software as well as hardware (both electrical and optical) together with a more generic and technology independent conceptual activity on network architectures and functional requirements.

The Systems Competence Area addresses optical time division multiplexing communication systems up to 640 Gbit/s, optical label swapping using orthogonal modulation formats, optical header recognition using SOA MZ interferometers, optical signal processing, optical modulation formats for improved transmission performance, as well as applications of both traditional highly non-linear fibres as well as photonic crystal fibers for optical signal processing and transmission. The Area is also involved in research to improve optical fiber distributed temperature sensors.

COM had and still has leading as well as collaborating roles in a number of research projects such as IST-METEOR, IST-PICCO, IST-OPTIMIST, IST-DAVID, IST-STOLAS, IST-TOPRATE, IST-GLAMOROUS, IST-MUPBED to name a few.

Tasks within BONE

WP14	VCE Optical Switching Systems, Co-leader. Contribution on ultrafast switching, QoS in OPS
WP22	Participant. Contributes work on multi-domain LSP setup.
WP23	Participant. Contributes work on coherent and envelope detection, 70 GHz radio front-end technology.
WP26	Participant. Contributes work on physical impairments and fault detection with adv. modulation formats.

Key personnel

Lars Dittmann was born in 1962 and received the M.Sc. EE and Ph.D. from the technical university of Denmark in 1988 and 1994, and is currently Full Professor at the University within the area of integrated networks. He has since January 99 been heading the network competence area (covering both optical and electrical networks) within the Research Center COM at the Technical University of Denmark and was prior to that responsible for electronic switching and ATM networks at the Center for Broadband Telecommunication. Lars Dittmann has been involved in a large number of EU and national projects working on optical communication networks.

Martin Nordal Petersen obtained his M.Sc. and Ph.D. degrees from the Technical University of Denmark in the field of optical networking. He is currently a post.doc. in the networks competence area. His research interests includes all-optical networks, optical signal monitoring and optical transmission systems.

Jakob Buron obtained his M.Sc.Eng. from the Technical University of Denmark in 2004. He is currently pursuing the Ph.D. degree in the field of optical network architectures at the same university. Jakobs research interests include all-optical switching nodes, control planes for optical networks, network protection and restoration. Jakob has co-authored 14 papers in the field of optical networking.