



P42: Bilkent Universitesi – Bilkent (Turkey)

Description of expertise & activities

Bilkent University was founded in 1984. Currently there are over 12,000 students in eight faculties, two four-year professional schools, two two-year vocational schools and the School of English Language plus six graduate schools. Among them are foreign students from 72 countries. The university each year awards full scholarships to over 2,500 students of high academic achievement. The faculty is comprised of an academic staff of about 500 researchers from 43 different countries.

Research on optical networking is performed within Bilkent University Information Networks Laboratory (BINLAB), which is based at the Electrical and Electronics Engineering Department. There are four faculty members (two from Electrical and Electronics Engineering Department and two from Industrial Engineering Department) who are actively doing research on optical networking. Some current research topics on optical networking include analysis of the blocking probabilities in optical burst switches with partial wavelength conversion, multi-layer traffic engineering in optical core and metro networks, adaptive burstification algorithms for QoS in OBS networks considering control plane capabilities and application OBS networks in grid applications. The research on optical networking within BINLAB is funded through projects sponsored by European Community FP6-IST program, Scientific and Technological Research Council of Turkey (TUBITAK) and National Center for Scientific Research of France (CNRS).

Tasks within BONE

WP00	General Project Management
WP11	Investigation of multi-layer traffic engineering subject to physical-layer constraints, performance analysis of OBS networks and adaptive burstification algorithms considering control plane limitations
WP14	Investigation and performance analysis of new optical burst/packet switching architectures
WP22	Developing VPN topology design methodologies
WP24	Investigating mechanisms for minimum BW guarantee in OBS and circuit oriented transport over OBS

Key personnel

Ezhan Karasan is an associate professor at the Electrical and Electronics Engineering Department, Bilkent University, since 1998. He has been working in the field of optical networking since 1995. He has worked in research projects on optical networking funded by DARPA, FP6-IST, COST and TUBITAK. His current research interests include analysis and design of optical burst/packet switching networks, applications of OBS in grid networks, multi-layer traffic engineering in IP/MPLS optical core and metro networks and adaptive reconfiguration in optical metro access networks. He is the recipient of 2004 Young Scientist Award from TUBITAK, 2005 Young Scientist Award from Mustafa Parlar Foundation and Career Grant from TUBITAK in 2004. He is a member of the Editorial Board of Optical Switching and Networking journal.

Nail Akar is an associate professor at the Electrical and Electronics Engineering Department, Bilkent University, since 2000. He has been working in the field of optical networking since 1998. He has worked in research projects on optical networking funded by FP6-IST, COST and TUBITAK. His current research interests include performance analysis of optical burst/packet switching networks, queuing systems, traffic engineering, network control and resource allocation. Dr. Akar is on the current editorial board of Computer Networks journal.

Oya Karasan is an associate professor at the Industrial Engineering Department, Bilkent University, since 1998. She has been working in the field of optical networking since 2000. Her research interests in optical networking concentrate on the placement of wavelength converters and regenerators in optical networks.

Hande Yaman joined the Industrial Engineering Department, Bilkent University after receiving her Ph.D. in Operations Research from Universite Libre de Bruxelles (ULB) in 2002. Her primary research interests are in combinatorial optimization, polyhedral theory, location and network design problems.