## P19: Research and Education Laboratory in Information Technology – AIT (Greece)

### Description of expertise & activities

AIT (www.ait.edu.gr) is a centre of excellence in ICT research and graduate education. The main role of AIT as a research and educational institute is to provide high quality research in the field of telecoms and IT, as well as training through three post-graduate educational programs and special professional courses focused on the industrial needs. AIT participates in BONE project with its 'Networks and Optical Communications' (NOC) research group. The group maintains a broad range of research activities and technical expertise supported be a state-of-the-art laboratory to that provides innovative research activities on optical communications. The work carried out within the AIT's NOC group is focused on optical network infrastructures for existing and future broadband networks and services in access, metro and wide area networks. Specific areas of interest include novel architectures for circuit-, burst- and packet- switching, optical system and subsystem design, signalling and routing protocols, network resilience, service aware network design and traffic engineering, advanced transmissions and switching techniques, and techno-economic studies.

AIT's NOC group has strong experience in collaborative joint activities through its participation in the NoE e-Photon/ONe+ project and the COST 291 action. Additionally AIT has a leading role in both projects, serving as a WP joint project leader in e-Photon/ONe and chairing the COST 291 management committee. Moreover, AIT holds close relationships with a large number of academic and industrial institutions, in various research fields related with optical networking. Collaborative work with these institutions is currently performed and supported by the aforementioned projects as well as the IP PHOSPHORUS and the STREP TRIUMPH where AIT participates.

### Tasks within BONE

| WP02 | Contributions and possibly organization of summer school. Distribution of teaching material |
|------|---------------------------------------------------------------------------------------------|
| WP11 | Studies on technologies and solutions that enable elimination of network segments |
| WP13 | Specifications of OLT/ONU sub-systems supporting hybrid optical /wireless networks |
| WP14 | Optical switch node architectures and technologies for OCS and futuristic OBS/OPS networks |
| WP15 | Studies on the performance improvement of low cost transmitters with the use of electronic equalization |
| WP21 | Contribution in the development of service oriented routing algorithms and network planning. |
| WP22 | Studies on constraint-based routing algorithms for GMPLS considering resources, performance, security etc |
| WP23 | Work Package leader |
| WP24 | Studies on burst assembly algorithms especially designed for CoS assignment applied at the edge nodes |
| WP25 | Design specification for chip-to-chip and board-to-board interconnects for super computers. |
| WP26 | Work Package leader |
| WP27 | Identification of monitoring schemes and dissemination of information in the network. |

### Key personnel

**Prof. Ioannis Tomkos** is the Associate Dean of Athens Information Technology Center since June 2004 and head of the NOC group. He has co-authored over 50 articles published in international scientific journals and over 130 presentations at conferences. He is the technical manager and WP leader in various European projects. He participates in several Editorial Boards and Technical Program Committees of the major international conferences in telecommunications and networking (IEEE ICC, IEEE Globecom, OSA/IEEE OFC, ECOC, etc.) and lead the optical networking activities in the IEEE Communications Society and IFIP.

**Prof. Anna Tzanakaki** is an Associate Professor at AIT. She is a co-author of over 80 publications in international journals and conferences and co-inventor of 11 published patents. She is a member of the IEEE and several Technical Program Committees. Her research interests include wavelength routed as well as optical burst and packet switched networks, associated systems and subsystems, and data and control plane issues for optical infrastructures suitable for telecommunications and grid computing applications.

**Dr. Dimitrios Klonidis** is a senior researcher at AIT and responsible for the NOC group laboratory. His main research interests are in the area of ultra-fast photonic networks, including optical transmission and modulation, fast switching, high speed optical processing and fast node control. The considered networking applications include high capacity SONET/SDH, Optical Packet/Burst Switched and Grid Computing Networks.