

# ICT-MobileSummit 2009

10 - 12 June, Santander, Spain

**Preface**  
**Technical Programme**  
**Committee**  
**Publisher**

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**By Authors**

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**Applications and Service**  
**Enablers**  
**Converged and Optical**  
**Networks**  
**Future Internet Technologies**  
**Radio Access and Spectrum**

## Publisher

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***BONE***  
***Building the Future Optical***  
***Network in Europe***  
***FP7-Call 1 – NoE***

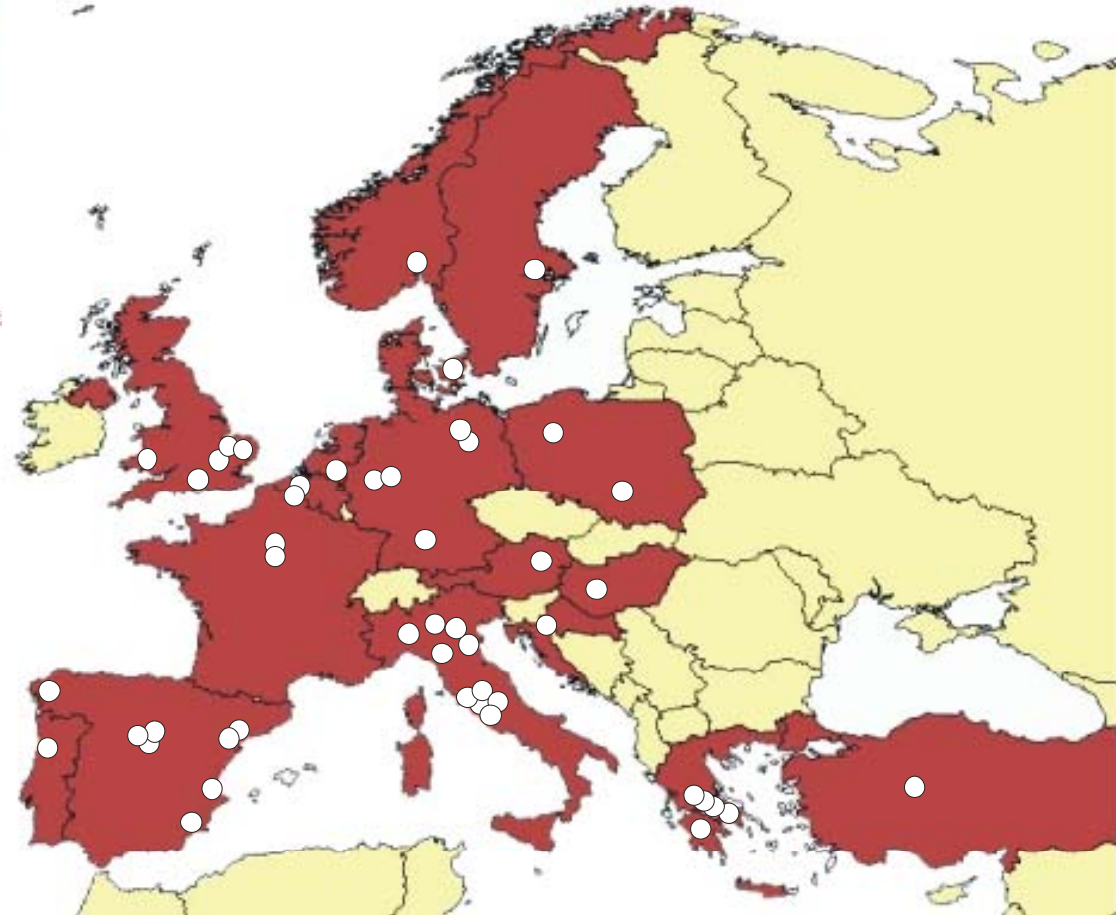
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# BONE Consortium



49 partners  
17 countries  
523 researchers



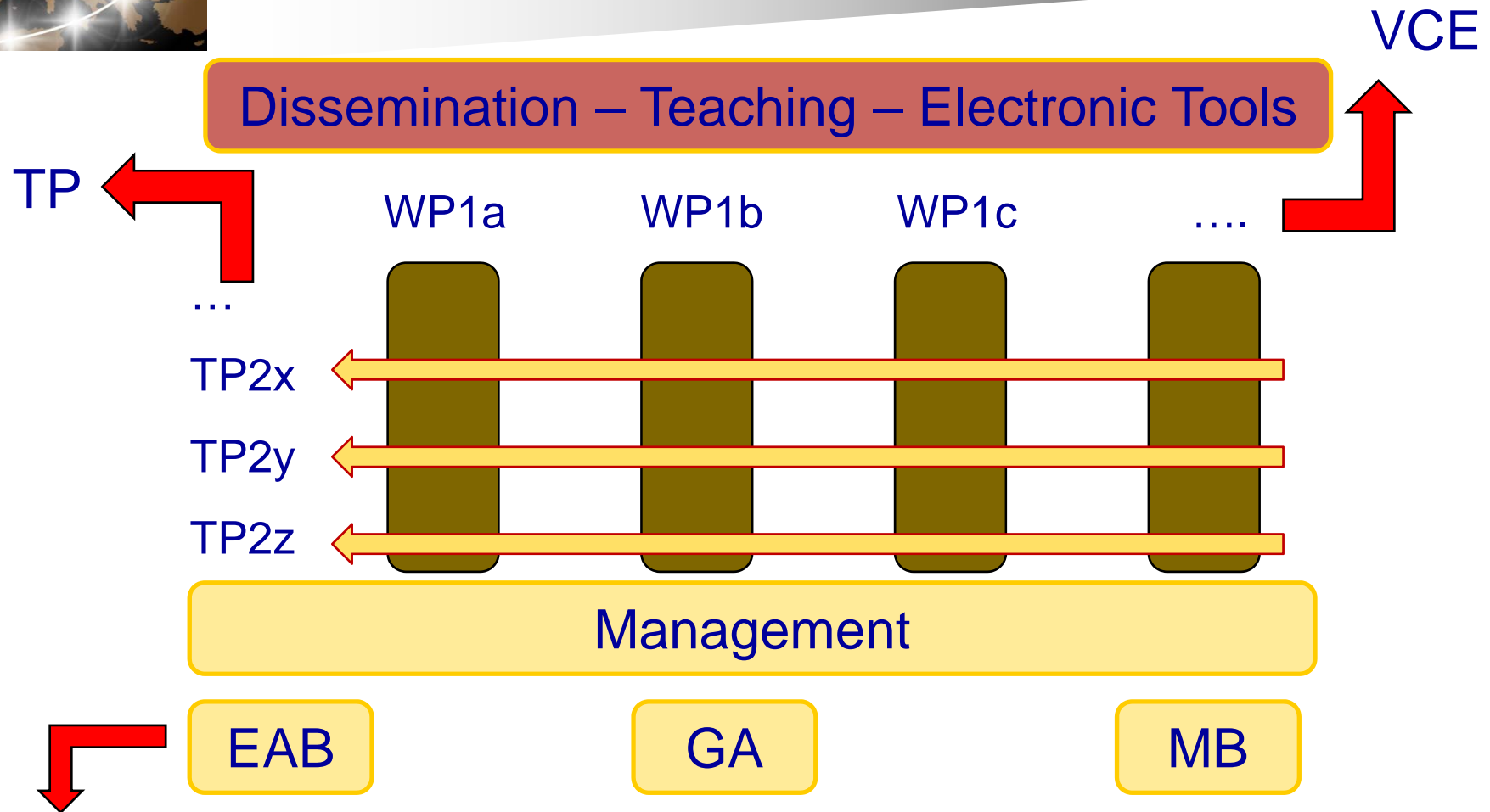


## BONE Objectives

- Build Virtual Centres of Excellence that cover specific issues in the field of Optical Networking that can serve European industry with education & training, research tools & testlabs and pave the way to development of new technologies & architectures.
- Reach out, include and link to research activities in national programmes, or programmes outside Europe.
- Stimulate an intensified collaboration, exchange of researchers between the research groups involved and active in the field
- Disseminate the expertise and know-how of these European Research groups to a broader audience, both R&D oriented as well as industry- and decision maker oriented.



# BONE Structure



Prof. Dr. Admela Jukan (Techni. Univ. Carolo-Wilhelmina zu Braunschweig)  
Prof. Kenichi Kitayama (Osaka University)  
Dr. Bill St Arnaud (CANARIE Inc., Canada)  
Dr. Eric Tsang (Communications Research Centre, Canada)



# Building the Future Optical Network in Europe

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The BONE-project is about people, integration and collaboration in the field of optical networks.



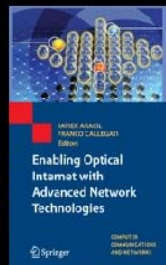
BONE stimulates discussions, mobility and interchange of ideas amongst researchers working at 49 institutes around Europe.



BONE is about dissemination ...

BONE teaches the world about Optical Networks ...

"Enabling Optical Internet with Advanced Network Technologies" Javier Araül & Franco Callegati  
To appear soon ISBN: 978-1-84882-277-1



Get here the presentations of the BONE workshop at OFC 2009 on "Energy Footprint of ICT: Forecasts and Network Solutions" (5.1 Mb)



The BONE-project validates the results of the European Commission funded FP6-Network of Excellence "ePhoton/ONE" by stimulating a more intensified collaboration, exchange of researchers and building on Virtual Centres of Excellence that can serve European industry with education & training, research tools & testlabs and pave the way to new technologies & architectures.



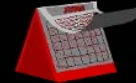
BONE is a Network of Excellence funded by the European Commission through the 7th ICT-Framework Program.



BONE Directory Service



BONE Portal



BONE Calendar

BONE is an active member of the FP7 Cluster "Converged and Optical networks"



BONE is co-organizer of the European Workshop on photonic solutions for wireless, access, and in-house networks May 18 - 20, 2009, Duisburg, Germany

# BONE website

## www.ict-bone.eu



- The number of joint papers and presentations (01/01/08 – 31/12/08)

Total number of publications: 188

Including joint papers: 62

Total number of A1-publications: 40

Total number of C1-publications: 145

Total number of papers with  
“BONE only acknowledgement” 93

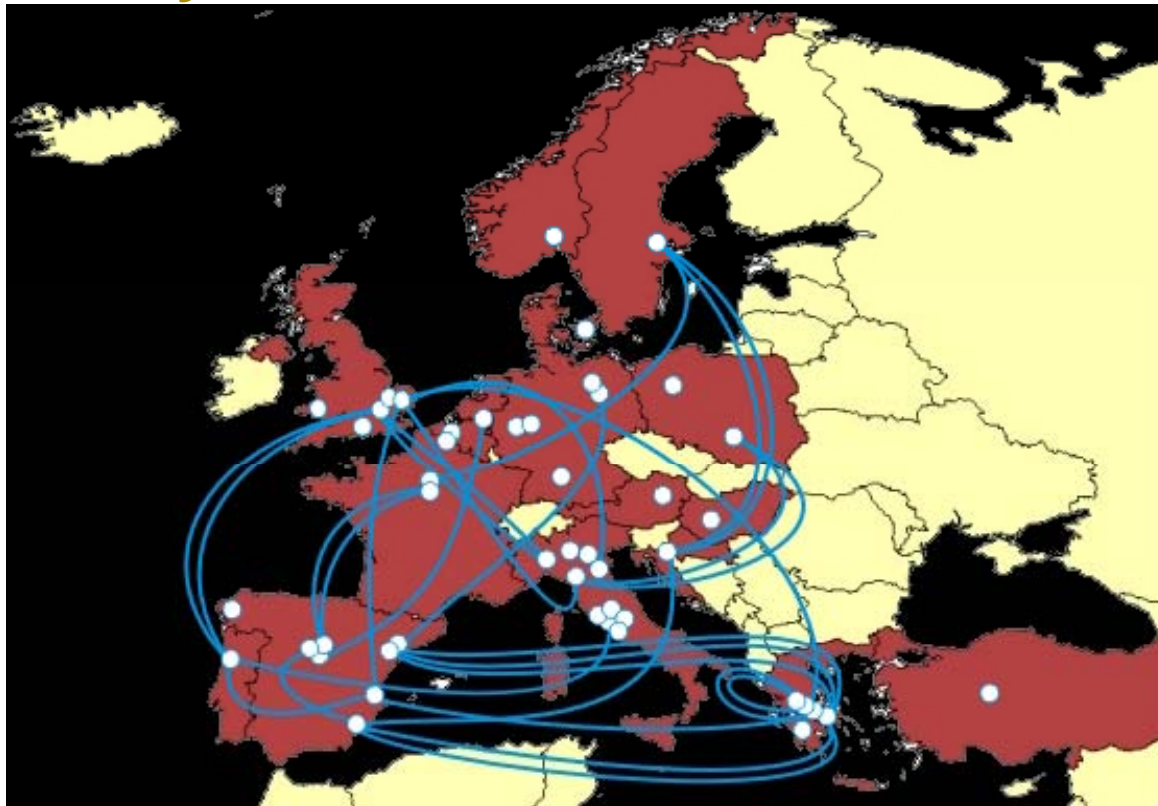
“BONE + EU-project acknowledgement” 33

“BONE + national-project acknowledgement” 48



# BONE Networking

## Mobility



BONE Y1:

29 Mobility actions

70 PM

50 k€





# BONE as dissemination channel

## Workshops

## Workshops @ OFC2008 (1) & ECOC 2008 (1+2)



Tuesday 23 September 14h30  
Network Solutions to Reduce t

### Organizers:



Mario Pickavet  
Ghent University - Belgium

### Scope:

Due to global energy production limits and environmental concerns, awareness for energy consumption is raising worldwide. While ICT is providing many energy-saving solutions, it is at the same time responsible for a considerable and steeply increasing energy footprint on its own. Recent surveys estimate that the complete life cycle of ICT equipment today is responsible for about 4% of the worldwide primary energy consumption. This percentage is expected to double within 10-15 years, if current ICT energy

### Workshop 2



### Workshop on Optical Grids, Drivers & applications for high performance optical networks

This Workshop on Optical Grids intends to bring together practitioners and researchers from both the high performance computing and networking fields. The main objective is to discuss the work on the emerging aspects related to advanced techniques, platforms, paradigms and models for the design, deployment and usage of high performance optical networks with a particular focus on Grid networks and applications.

A workshop organised in the framework of the FP7 "BONE"-project

[Download \(4 out of 5\) Presentations here](#) (6.10 Mb)

### Organizers:

- Chris Develder  
Ghent University - IBBT, Belgium
- Dimitra Simeonidou  
University of Essex, UK
- Chunming Qiao  
SUNY Buffalo, USA



Australia

### Workshop 5



### All-Optical versus OEO Networks

Transparent (all-optical) networking solutions have been touted as having the potential to meet those requirements and offer significant benefits in terms of performance and cost. On the other hand recent advancements in photonic integrated circuits have enabled the operation of opaque networks based on optoelectronic conversions (OEO) at much lower cost than what was originally considered possible in the past.

The workshop is organized under the auspices of EU Network of Excellence BONE and the support of EU projects TRIUMPH, DICONET

[Download Presentations here](#) (6.90 Mb)

### Organizers:

- Ioannis Tomkos  
AIT, Greece
- Winston Way  
Opvista, USA



two-fold. First, it aims to provide ad picture will allow to identify key illenges and potential solutions

ind academia. A closing panel and action points.





# BONE as dissemination channel

## Booths at exhibitions



The ICT BONE booth 320 at ECOC 2008 exhibition



The ICT BONE booth J09 at ICT 2008 exhibition



## Public event

- focus on **14/15 yr female students** (120 children) for a full day visit
- The programme would involve the core lecture [**Telecommunications using Light**] together with lab visits and a chance to talk to researchers.
- The core lecture will last about 90 minutes and focus on **Telecommunications and the increasing role of optics**
- The objective is to get over concepts using **simple hands-on experiments** and to back this up with glimpses of modern technology realisations through video, photos and microscopes.
- During the event there will be **video links** to researchers at other partner institutes in Europe and have some questions and answer opportunities.
- Involved partners: **UEssex, UoP, AIT, IBBT, Polito, KTH, Telfer**



# BONE teaching

## 1st BONE Master School

**FPMs, Mons, Belgium, October 15-17**

- Master School dedicated to Common Master course 1  
*Optical Fibre Technology and Propagation*
- 2 days of tutorials
- 3 days of practical classes for guest s
- 2 weeks of practical classes for local students in Mons and Brest
- End of January 2009 on-line exam





## BONE teaching 1st BONE Summer School

- FPMs Mons, Belgium, October 15-17
- Collocated traditional Summer School with the topic  
Electronics and Signal Processing for Optical Transmission  
3 days (Wed-Fri): Tutorials of experts, oral presentations  
and poster session of PhD students



## BONE teaching Common Master Activity

- BONE Master study in Optical Communications and Networks is based on curricula and teaching materials inherited from e-Photon/ONe.
- Task Force of WP02 is continuing collaborative work to improve quality of existing materials.
- Trying to prepare materials for open access on BONE web site according to Creative Commons Public License.
- Renovation of courses in order to keep up with advances in photonic technology and architectures.
- New Master courses are proposed



## BONE teaching Existing Master Courses

- **Introduction to optical networks - Light propagation**  
Coordinators: Michel Morvan and Marc Wuilpart
- **Optical Technologies and Components**  
Coordinators: Antonio Teixeira and Kevin Heggarty
- **Optical Core Networks**  
Coordinators: Piero Castoldi and Josep Solé Pareta
- **Optical Access and Metro Networks**  
Coordinators: Achille Pattavina and Guido Maier
- **Photonics in Switching**  
Coordinators: Lena Wosinska and Carla Rafaeli
- **Optical Network Resilience**  
Coordinators: Luca Valcarenghi and Branko Mikac,
- **Optical transmission**  
Coordinators: Véronique Moeyaert and Michel Morvan
- **Spin-off applications of optical telecommunications technology**  
Coordinators: Kevin Heggarty and Carmen Vazquez



One of the activities within WP01 has an objective to :  
To extend the roadmap [commenced in e-Photon/ONe] into a focused view (roadmap) of the evolution of photonic networks [within Europe] for telecom and non-telecom applications; and bench mark European research activities against international programmes.

## People involved

**T. Politi (University of Peloponnese)**  
**M. O'Mahony (UEssex)**  
**A. Tzanakaki (AIT)**  
**J. Mitchell (UCL)**  
**D. Simeonidou (UEssex)**





## Roadshow

- Links to industry ... difficult and mostly with R&D
- Lesson learned from “NEMO NoE”:
  - Workshop programme based on “tutorial”-type of lectures + highlights
  - Travel to Industry
  - 1 or 2 times / year
- Open to other projects
- Programme to be defined



- The main EU channel for dissemination of results from research groups in the field of Optical Networks:
  - Over 190 publications
  - Major involvement with BONE ack. at major events
  
- Major effort regarding education of young researcher:
  - About 30 mobility actions of researchers
  - Summer School and Master School incl. ECTS certification



- Integration of activities in research related to optical networks is realized through:
  - Through the mobility grants  
(align research work, PhD work and experiments)
  - Through alignment of national projects with European research.  
(25% of BONE-publications carry ackn. of National project)
  - Through cooperation across European funded projects  
(BONE has joint publications with 15 other EU-funded projects.)

**Key message: avoid conflicts by realistic aligning**



## What is BONE ?

- BONE is a **Network**
  - 523 researchers / 49 partners / 17 countries
  - 60+ joint publications
  - 30+ mobility actions
- of **Excellence**
  - 50+ papers submitted to OFC 2009 (San Diego, USA),
  - with an acceptance rate of over 80 %,
  - significantly higher than the average acceptance rate
  - Involved in workshops / major events
  - BONE people are international key players

**Key message: integration through awareness**