

## “Celebrating the International Year of Light and Light-based Technologies”

### VICTORIES – UPC (ETSETB) Post-ECOC Workshop on *Photonic Technologies for Telecommunications*

October 2<sup>nd</sup> and October 3<sup>rd</sup>, 2015, Barcelona, Spain

Time	Activity October 2 <sup>nd</sup>
08:00-09:00	Registration (Telecom-Square Entrance Floor, Building B3)
09:00-09:10	Welcome and opening by UPC and ETSETB (TelecomBCN)
09:10-09:20	Vice-President for Knowledge Transfer: Esther Real & Dean of ETSETB : Ferran Marqués
09:20-10:20	Opening by AIST, Shu Namiki (VICTORIES Director) Plenary Talks (Public in General) “Flexible high capacity optical transport system: enabling technologies for 100G and beyond”, <i>Kiyoshi Fukuchi (NEC)</i> “ICFO’s Program Light for Information”, <i>Sergi Ferrando (ICFO)</i>
10:20-10:25	<b>Coffee break (1<sup>st</sup> Floor)</b>
<b>Technical Session – PHOTONIC IC’s Aarón Albores-Mejía (AIST-JP) Presider</b>	
10:30-10:50	“Advancing Silicon Photonics into Next-Generation Computing Systems”, <i>Ashkan Seyedi (HP-USA)</i>
10:50-11:10	“Photonic integrated circuit for fast reconfigurable network”, <i>Guilhem de Valicourt (Bell Labs-USA)</i>
11:10-11:30	“Development of Silicon Photonic Hybrid Ring-Filter External Cavity Wavelength Tunable Lasers”, <i>Kenji Sato (NEC)</i>
11:30-11:50	“Integrated Optical Circuits and Devices for Communications and Sensing”, <i>Iñigo Molina (U. Malaga)</i>
11:50-12:05	“The Fabless Photonic Integration Model”, <i>Iñigo Artundo (VLC photonics)</i>
12:05-13:05	<b>Lunch (Telecom-Square Entrance Floor)</b>
<b>Technical Session - NETWORKS --- Gabriel Junyent (UPC-Spain) Presider</b>	
13:10-13:30	“Cavity-Soliton Kerr Frequency Combs and their applications”, <i>Michael Geiselmann (EPFL)</i>
13:30-13:50	“Nyquist OTDM transmission”, <i>Toshihiko Hirooka (Tohoku)</i>
13:50-14:10	“Optical Networks and Systems Research at CTTC”, <i>Josep M. Fàbrega (CTTC)</i>
14:10-14:30	“Flexible optical networks research using high resolution spectroscopy”, <i>Juan Ignacio Garcés (U. Zaragoza)</i>
14:30-14:50	“Extremely broadband, low-energy, and low latency optical networking for future infrastructure”, <i>Kiyo Ishii (AIST-JP)</i>
15:20-16:00	<b>Lab. Tour ICFO</b>
16:20-17:00	<b>Lab. Tour CTTC</b>
17:10-	<b>“Gaudi” Cultural Tour (group photo)</b>

Time	Activity October 3 <sup>rd</sup>
<b>Technical Session - CAPACITY Takashi INOUE (AIST-JP) Presider</b>	
9:00-9:20	“Photonic Technologies and Sustainable Networks”, <i>Jose A. Lazaro (UPC)</i>
9:20-9:40	“Optical Networks and technologies”, <i>Jose Capmany (UPV)</i>
9:40-10:20	<b>Lab. Tour UPC</b>
10:30-10:35	<b>Coffee break (1<sup>st</sup> Floor)</b>
10:40-11:00	“Photonic bandgap fibres for low-latency data transmission”, <i>Francesco Polletti (SOTON)</i>
11:00-11:20	“Coupled-Core Multi-Core Fibers: High-Spatial-Density Optical Transmission Fibers with Low Differential Modal Properties”, <i>Tetsuya Hayashi (Sumitomo)</i>
11:20-11:40	“SDM techniques for Data Center Applications (tentative)”, <i>Roland Ryf (Bell Labs)</i>
11:40-12:00	<b>Closing Remarks (UPC-AIST)</b>

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#### Practical Information

##### Workshop Location

**Building B3 - Ricardo Valle**

Floor 0 Office 001

Campus North

1-3 Jordi Girona Street

08034 Barcelona

[UPC Maps](#)

[Public transport in Barcelona](#)

##### Speaker Information

Please prepare a 20 min inspiring talk (Q&A included).

A computer (PC/Mac) will be available if your presentation is on a USB drive.

It is also possible to use your personal computer.



##### Internet Access

Network name:

Password:

##### Registration Fee:

- **25 Euros**  
 (A Receipt will be given for reimbursement) (Please, we cannot provide Credit Card or Bank Transfer payment methods. ONLY CASH. A Bank and VISA ATM is also available in front of Registration Desk)
- **Free for technical sessions-only (without networking activities).**
- **Transport to lab sponsored by VLC photonics**
- **“Gaudi” Cultural Tour (Sagrada Familia) sponsored by ETSETB-TelecomBCN**



##### Accommodation

Please find here the list recommended Hotels from UPC:

[https://www.upc.edu/sri/congress/accomodation-upc-barcelonatech/hotels\\_in\\_barcelona](https://www.upc.edu/sri/congress/accomodation-upc-barcelonatech/hotels_in_barcelona)



## Travel Information

Please, find here, precise location of the event and information for accessing from Airport and Train Station:

<https://www.google.es/maps>

[http://www.barcelona-airport.com/eng/transport\\_eng.php](http://www.barcelona-airport.com/eng/transport_eng.php)

<http://www.barcelona-tourist-guide.com/en/transport/barcelona-sants-station.html>

## Information about Barcelona

There many places to visit and enjoy in Barcelona. Please, find here some suggestions:

<http://www.barcelona.cat/en/>

<http://restaurantriton.com/>

<http://www.eltenedor.es/>

<http://www.bcnrestaurantes.com/eng>

## Contact

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Jose Antonio Lazaro: [jose.antonio.lazaro@upc.edu](mailto:jose.antonio.lazaro@upc.edu)

## Speakers

### Kiyoshi Fukuchi

Kiyoshi Fukuchi received the B.S. degree in electronics engineering in 1989 and M.S. degree in electrical engineering in 1991 from University of Tokyo, Japan. In 1991, he joined Opto-electronics Research Laboratories, NEC Corporation, Kawasaki, Japan where he has been involved in research on high-speed large-capacity optical fiber transmission systems. Now, he is a senior manager at Green Platform Research Laboratories where he is responsible for optical and wireless transmission system technologies.

### Sergi Ferrando

Sergi Ferrando graduated in Physics from the Universitat de Barcelona (UB) in 1999 and then moved to the UK to get an MSc in Mathematical Physics from the University of London. In 2005, he obtained a PhD in Physics at the École Polytechnique Fédéral de Lausanne (EPFL) in Switzerland. He was later awarded a JSPS Post-doctoral Research Fellowship from the Japanese Government for a two-year Post-doc at the National Institute of Fusion Science in Toki, Japan. In 2008, Sergi moved back to Barcelona to work at Monocrom S.L., a laser manufacturing SME, where he was appointed Director of R&D in 2010. In 2013, he joined ICFO-The Institute of Photonic Sciences, where he works now as Business Developer within the Knowledge and Technology Transfer Team. From 2009 to 2013 Sergi was member of the Board of Representatives of Fotónica21, Spanish mirror of Photonics21. In 2011, Sergi was one of the representatives of the Spanish Technological Mission to Japan, organised by the Spanish CDTI and the Japanese NEDO within the JSIP bilateral framework.

### Ashkan Seyedi

Ashkan joined the Large Scale Integrated Photonics group at HP Labs in 2014, focusing primarily on the development of silicon photonics process design kits, photonic chip design, and optical data link experiments. Prior to joining HP Labs, Ashkan earned his Ph.D. at the University of Southern California, co-advised by P. Dan Dapkus and John O'Brien, working on the opto-electronic devices using nanowire and photonic crystal architecture, solar cells and LEDs. He holds a dual Bachelor's degree in electrical and computer engineering from the University of Missouri-Columbia.

### Guilhem de Valicourt:

Guilhem de Valicourt received the BSc degree in applied physics from the National Institute of applied Sciences (INSA), Toulouse, France, in 2008. From 2007 to 2008, he followed and passed the Master of Science in Photonics Devices at Essex University, U.K. In 2008, he joined Alcatel-Thales-CEA III-V lab where he was working on design, fabrication, and characterization of Reflective SOA and directly modulated DFB lasers for microwave photonic systems and next generation of optical access networks toward the Ph.D. In 2011 he joined Alcatel-Lucent Bell Labs in France then in 2014, he joined Bell Laboratories, Alcatel-Lucent, Holmdel, NJ, USA. His main research interests are focused on design and characterization of advanced integrated photonics devices (in InP, silicon and hybrid III-V on silicon platform), optical packet transport and switching for metropolitan and wireless backhaul networks, technology for datacentres and access networks. He has authored or co-authored more than 80 scientific papers in journals and international conferences, two book chapters and holds 20 patents. He received the 2011 "Best project" award from Alcatel-Lucent Bootcamp, the 2012 Marconi Young Scholar award and was a finalist for the ParisTech Ph.D. prize in 2012.

### Kenji Sato (NEC)

Bio not available.

### Iñigo Molina

I. Molina-Fernández received the Ingeniero de Telecomunicación degree from the Universidad Politécnica de Madrid, Madrid, Spain, in 1989 and the Ph.D. degree from the Universidad de Málaga, Málaga, Spain, in 1993. Since 1989, he has been with the ETSI Telecomunicación, Universidad de Málaga, as an Associate and then Full Professor, where he is the leader of the Photonics&RF group. His research interest is in the area of optical and microwave communications where he has led several projects regarding design of optical integrated devices and prototyping of microwave/millimeter wave systems. He is co-author of more than 100 international publications in microwave and photonic topics. He has been participating in more than 25 research and development national and international projects.

### Iñigo Artundo

Obtained the M.Sc. in Telecom Engineering at the Universidad Publica de Navarra (Pamplona, Spain) in 2005, and received his Ph.D. in Applied Physics and Photonics at the Vrije Universiteit Brussel (Brussels, Belgium) in 2009. He has been involved in several national and European research projects and networks of excellence focused on reconfigurable optical interconnects, the design, fabrication and characterization of micro-optic devices, and on flexible access and in-building fiber network architectures. He has worked as a reviewer for several scientific journals and national funding agencies. He holds specializations in Business Financing, Commercial Management and Research, and Strategic Marketing. He is a member of IEEE, SPIE and COIT.

### Dr. Geiselmann

Michael Geiselmann studied physics and engineering at University Stuttgart and Ecole Centrale Paris. After his Diploma thesis on ultrafast nano optics at Max Planck Institute of Solid State Research in 2009 he obtained his PhD at ICFO in Barcelona in the field of nano- and quantum-optics in 2014.

He then joined the laboratory of Prof. Kippenberg, where he advances the frequency comb generation on integrated Silicon Nitride chips towards applications. He was awarded the Marie Curie co-fund fellowship from EPFL in 2015.

### Toshihiko Hirooka (Tohoku)

Toshihiko Hirooka received the Ph. D. degree from Osaka University in 2000. From 2000 to 2002, he was a Research Associate at University of Colorado at Boulder. He is currently an Associate Professor at the Research Institute of Electrical Communication, Tohoku University. He has been engaged in research on ultrahigh-speed optical communications and nonlinear fiber optics.

### Josep M. Fàbrega

Josep M. Fabrega received the B.Sc. and M.Sc. degrees in telecomm engineering, and Ph.D. degree in signal theory and communications from Universitat Politècnica de Catalunya, Barcelona, Spain, in 2002, 2006 and 2010, respectively. He is currently a Research Associate in the Optical Networks and Systems department at the Centre Tecnològic de Telecomunicacions de Catalunya (CTTC), Castelldefels, Spain. Prior to that, he was with the scientific staff of the UPC-BarcelonaTech Optical Communications Group from 2004 to 2010. He is the author of more than 30 papers and co-author of another +40 papers. His research interests include optical transmission devices, systems and subsystems, as well as advanced modulation formats for novel communication segments, applications and services. Dr. Fabrega is a member of the IEEE Photonics Society and received the EuroFOS best student research award for his Ph.D. thesis in 2010.

### Juan Ignacio Garcés

Ignacio Garcés obtained his PhD in Physics in 1996 studying silica-on-silicon ARROW integrated optical waveguides and their application to optical sensors. He became Associate Professor in 2000 and Full Professor of Optical Communications in 2010. He has been involved in several public and privately funded projects related to photonics integrated circuits, optical sensors, plastic optical fibre communications and, lately, the development of high resolution spectroscopy techniques applied to optical networks. He works at the Photonics Technologies Group of the University of Zaragoza leading several projects related to Optical Communications and Photonic Integrated Circuits.

### Kiyo Ishii

Kiyo Ishii is with Optical Network Technologies Group of AIST, Japan. She completed the doctor's program in 2011 at Nagoya University. From 2008 to 2011, she was a Research Fellow of the Japan Society for the Promotion of Science, Japan. Her current research interests include optical network systems, energy efficiency in networks, and network resource optimization.

### Jose A. Lazaro

Jose Lazaro is Associate Professor at the Optical Communications Group (GCO) and Vice-Dean for International Relations of the School of Telecommunication Engineering in Barcelona (ETSETB) at UPC. He received the Ph.D. degree from the University of Zaragoza (Spain) in 1999 for his research work in Erbium doped waveguide amplifiers. Prior to his current position, he was Ramon-y-Cajal Researcher at UPC, Senior Researcher at the Optical Transmission and Broadband technologies Laboratory (TOYBA) of the Aragon Institute for Engineering Research (I3A) (Spain) and R&D Engineer in ALCATEL-LUCENT in Stuttgart (Germany) at the Dept. of Passive Optical Components and High Speed Transmission Systems. He has been



and is participating in several European projects (e-Photon/One, BONE, EURO-FOS, SARDANA, COLIBRI) and leading Spanish research project TEYDE and he is currently leading project SUNSET. He has authored above 170 reviewed international publications and 20 patents.

#### Jose Capmany

José Capmany was born in Madrid, Spain, on December 15 1962. He received the Ingeniero de Telecomunicación degree from the Universidad Politécnica de Madrid (UPM) in 1987 and the Licenciado en Ciencias Físicas in 2009. He holds a PhD in Electrical Engineering from UPM and a PhD in Quantum Physics from the Universidad de Vigo. Since 1991 he is with the Departamento de Comunicaciones, Universidad Politécnica de Valencia (UPV), where he started the activities on optical communications and photonics, founding the Optical Communications Group ([www.gco.upv.es](http://www.gco.upv.es)). He has been an Associate Professor from 1992 to 1996, and Full Professor in optical communications, systems, and networks since 1996. In parallel, he has been Telecommunications Engineering Faculty Vice-Dean from 1991 to 1996, and Deputy Head of the Communications Department since 1996. Since 2002, he is the Director of the ITEAM Research Institute, Universidad Politécnica de Valencia. His research activities and interests cover a wide range of subjects related to optical communications including optical signal processing, ring resonators, fiber gratings, RF filters, SCM, WDM, and CDMA transmission, wavelength conversion, optical bistability and more recently quantum cryptography and quantum information processing using photonics. He has published over 450 papers in international refereed journals and conferences and has been a member of the Technical Programme Committees of the European Conference on Optical Communications (ECOC), the Optical Fiber Conference (OFC), the Integrated Optics and Optical Communications Conference (IOOC), CLEO Europe, and the Optoelectronics and Communications Conference (OECC). Professor Capmany has also carried out activities related to professional bodies. He is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), the Optical Society of America (OSA) and the Institution of Electrical Engineers (IEE). He has acted as a reviewer for over 25 SCI journals in the field of photonics and telecommunications. Professor Capmany is the recipient of King James I award on novel technologies 2012, the highest scientific distinction in Spain. He has also received other awards including the Extraordinary Doctorate Prize of the Universidad Politécnica de Madrid in 1992. He is an associate Editor of IEEE Photonics Technology Letters and is a Member of the Editorial Board of Fiber and Integrated Optics, Microwave and Optical Technology Letters. He has also been a Guest Editor for the IEEE Journal of Selected Topics in Quantum Electronics.

#### Francesco Poletti

Dr Francesco Poletti is a Royal Society University Research Fellow and a Principal Research Fellow at the Optoelectronics Research Centre (ORC) at the University of Southampton, where he leads the activities of the soft glass fibre group. After an industrial placement in optical networks R&D at Marconi Communications he has spent the last 12 years at the ORC working on modelling of optical phenomena and on the development of novel microstructured optical fibres. His research interests include the design of air guiding fibres, the development of fibre optic characterisation techniques and the study of nonlinear optical effects in novel fibres. He has co-authored over 250 conference and journal publications and numerous patents.

#### Tetsuya Hayashi

Tetsuya Hayashi received the B.E. and M.E. degrees in electronic engineering from the University of Tokyo, Tokyo, Japan, in 2004 and 2006, respectively, and the Ph.D. degree in engineering from Hokkaido University, Sapporo, Japan, in 2013. In 2006, he joined the Optical Communications R&D Laboratories, Sumitomo Electric Industries, Ltd., Yokohama, Japan. He has been involved in research and development on optical fibers and fiber optics. His current research interests include fibers for spatial multiplexing.

#### Roland Ryf (Bell Labs)

Bio not available.