Photonic integration:
advanced materials, new technologies and applications

Purpose of the course - The first school of the Italian Chapter of the IEEE Photonics Society is aimed to PhD students and Post-docs in Engineering and Physics in the field of photonic technologies. Photonic integration is the key issue of this first course, which involves novel design techniques and fabrication processes to make integrated optic devices and systems for novel industrial products. Industrial point of view will be also considered indeed. Lectures will be given by international first class scientists coming from prestigious Italian and foreign universities, research centers and industrial laboratories. The course will be also an ideal forum to trigger new cultural exchanges and foster new collaborations in the field of photonics.

International School of Liquid Crystals - 22nd Course

1st School of IEEE Photonic Society - Italy Chapter

Erice, 25th September– 1st October, 2016

25th September
Afternoon: Arrival
21.15: Welcome Reception at the Marsala Lecture Hall (S. Rocco)

26th September

9.00-9.20		**Welcome by** **C. Zannoni - Director of the ISLC** **S. Selleri (IEEE Photonics Society Italy Chapter)**
9.20 - 10.20	**Lecture 1**	Introduction: what, why, when, where, how Meint Smit
10.20 - 11.20	**Lecture 2**	The food chain for photonics integration **Marco Romagnoli – CNIT-TeCIP Scuola Superiore Sant'Anna - Pisa**
11.20 - 11.50		*Coffee Break*
11.50 - 12.50	**Lecture 3**	Fundamentals on integrated optics I **Andrea Melloni - POLIMI**
12.50 - 15.00		*Lunch break*
15.00 - 16.00	**Lecture 4**	Fundamentals on integrated optics II **Gabriella Cincotti UNIVERSITY of ROMA TRE**
16.00 - 17.00	**Lecture 5**	Materials and technologies: Silicon TBD
17.00 - 17.30		*Coffee Break*
17.30 - 18.30	**Lecture 6**	Materials, technologies and devices: InP and III-V **Meint Smit, Technical University of Eindhoven, The Netherlands**
18.30 - 19.30	**Lecture 7**	Materials and technologies: SiON and Si_3N_4 passive devices TBD

27th September

9.00 - 10.00	**Lecture 8**	Materials and technologies: Glass and polymers **Maurizio Ferrari – CNR-IFN Istituto di Fotonica e Nanotecnologie**
10.00 - 11.00	**Lecture 9**	Materials and technologies: electro-optic dielectrics (EO Polymers, LNB) **Maria Bernal-Pilar**
11.00 - 11.30		*Coffee Break*
11.30 - 12.30	**Lecture 10**	Advanced materials I (organic composites, liquid crystals) **Antonio d'Alessandro – Sapienza University of Rome**
12.30 - 15.00		*Lunch break*

15.00 - 16.00	**Lecture 11**	Integration of active devices **Dries Van Thourhout, Ghent University, Belgium**
16.00 - 17.00	**Lecture 12**	Integration: the holistic view **Dries Van Thourhout, , Ghent University, Belgium**
17.00 - 17.30		*Poster Presentation*
17.30 -19.00	**Posters**	Coffee Break and Poster session

28th September

9.00 - 10.00	**Lecture 13**	Spatial solitons and nonlinear integrated optics: the legacy of Prof. George Stegeman and some recent developments – **Gaetano Assanto University of Roma TRE– Stefan Weibnitz University of Brescia**
10.00 - 11.00	**Lecture 14**	Optical interconnect: Photonics at service of Electronics **Karen Bergman, Columbia University, New York City, NY USA**
11.00 - 11.30		*Coffee Break*
11.30 - 12.30	**Lecture 15**	Control layer: Electronics at service of photonics **Francesco Morichetti, POLIMI**
12.30 – 13.30	**Lecture 16**	Packaging **Antonello Vannucci – Linkra srl**
13.30 - 15.30		*Lunch break*
15.30 - 17.00	**Round Table**	The Industrial perspective (market, margin, profit, vertical or horizontal) TBD
17.00 - 17.30		*Coffee Break*
17.30 – 19.00	**Demo**	Software Tools, hands on TBD

29th September

9.00 - 22.00		**Excursion Selinunte/Segesta** **Dinner Cantine Florio**

30th September

9.00 - 10.00	**Lecture 17**	Applications: sensing in integrated optics **Ivo Rendina CNR-IMM Istituto per la Microelettronica e Microsistemi**
10.00 - 11.00	**Lecture 18**	Photonics technologies for future 5G mobile networks **Roberto Sabella ERICSSON**
11.00 - 11.30		*Coffee Break*
11.30 - 12.30	**Lecture 19**	Applications: biophotonics **Pietro Ferraro CNR-ISASI Institute of Applied Sciences and Intelligent Systems**
12.30- 13.30	**Lecture 20**	Applications: RoF, Microwave photonics **José Capmany Universidad Politecnica de Valencia**
13.30 - 15.00		*Lunch break*
15.00 - 16.00	**Lecture 21**	Applications: quantum integrated photonics **Fabio Sciarrino- Sapienza**
16.00 - 17.00	**Lecture 22**	The generic photonic foundry perspective: existing foundries, manufacturing, access, expectations, philosophy **Meint Smit, Technical University of Eindhoven, The Netherlands**
17.00 - 17.30		*Coffee Break*
17.30 - 18.30	**Lecture 23**	The future of photonics integration, a visionary but realistic perspective (scalability, the mass production dream, future and limits) TBD
18.30 – 18.50		Concluding remarks

1st October: Departures