



## Programme

### Saturday July 2<sup>nd</sup>

12.00 - 18.30: Arrival and Registration

19.30 - 21:30: Welcome Dinner

from 21:30: **Networking and Scientific discussion**

Sicilian cakes, Marsala and piano music in the "Marsala Room Cave"

### Sunday July 3<sup>rd</sup>

09:00 - 13:00: Arrival and Registration

12:00 - 14:00 Lunch

14:00– 14:20: **Giorgio Benedek, Federico Capasso, Vladimir Shalaev** and **Miriam S. Vitiello**  
*Opening remarks*

#### **SESSION I**

*Chair: Vladimir Shalaev (Purdue University)*

14:30 – 15:30: **Boubacar Kante** (University of California, Berkeley (USA) *invited*  
*"Topological Lasers and Berkeley Surface Emitting Lasers (BerkSELS)"*

15:30 – 16:00 *Coffee Break*

#### **SESSION II**

*Chair: Federico Capasso (Harvard University, USA)*

16:00 – 17:00 **David B. Phillips** (Department of Physics and Astronomy, University of Exeter), *invited*  
*"Rendering the opaque transparent: recovering spatial information hidden in scattered light"*

17:00 – 17:15 Jaming Ma (École Polytechnique Fédérale de Lausanne)  
*"Plasmonic Au Decoration on TiO<sub>2</sub> Nanostructures for Solar Powered Redox Cells"*

17:15 – 17:30 Tarique Anwar (École Polytechnique Fédérale de Lausanne)  
*"Hydrovoltaic energy generator using Nanostructured silicon and natural evaporation"*

17:30 – 17:45 Andrea Tognazzi (University of Palermo and CNR-INO, Brescia)  
*"Tuning of nonlinear device through opto-thermal response"*

17:45 – 18.00 Riccardo Panico (University of Lecce and CNR-NANOTECH, Italy)  
*"Onset of vortex clustering and inverse energy cascade in dissipative quantum fluids"*

19:30 – 21:30: Dinner

From 21:30: Sicilian cakes, marsala piano music in the "Marsala Room Cave"

## Monday July 4<sup>th</sup>

### **SESSION III**

Chair: *Miriam S. Vitiello (CNR-NANO, Italy)*

9:30 – 10:30: **Vladimir Shalaev** (Purdue University,) *invited*  
*"Hybrid Quantum Photonics"*

10:30 – 10:45 Ahmed Dorrah (Harvard University)  
*"Diffraction-free structured light for 3D holography"*

10:45: 11:15: *Coffee Break*

11:15 – 12:15: **Evelyn Hu** (Harvard University USA) *invited*  
*"Where Imperfections Lead to Opportunities: Semiconductor "Defects" as Nano-Photonic Emitters"*

12:15 – 12:30 Helmut Ritsch (University of Innsbruck)  
*"Minimalistic efficient quantum devices build of dipole coupled nano arrays of quantum emitters"*

12:30 – 12:45 Adeel Afridi (ETH and ICFO)  
*"Optomechanically Reconfigurable Metalens"*

12:45 – 13:00 Hana Hampel (University of Gratz, Austria)  
*"New innovative approach for XUV focusing: Extreme Ultraviolet Metasurfaces"*

13:00 – 16:00: Lunch Break and Free Time

### **SESSION IV**

Chair: *Boubacar Kante (University of California, Berkeley (USA))*

16:00 – 17:00: **Cornelia Denz** (University of Muenster, Germany) *invited*  
*"Structuring topologies in light: from singularities to skyrmionic Hopfions"*

17:00 – 17:15 Kosmas L. Tsakmakidis (National and Kapodistrian University of Athens, Greece)  
*"Topological Trapped-Rainbow and Nonreciprocal Guides Beyond the Time-Bandwidth Limit"*

17:15 – 17:30 Christina M. Spaegele (Harvard University)  
*"Topological protection of polarization singularities in four dimensions"*

17:30 – 17:45 Michael de Oliveira (IIT Milan, Italy)  
*"Pure vortex beams from a phase-amplitude metasurface"*

17:45 – 18:00 Valeriia Bobkova (University of Muenster, Germany)  
*"Orbital angular momentum of light structured by a highly scattering medium"*

19:30 - 21:30: Dinner

From 21:30: Sicilian cakes, marsala and piano music in the "Marsala Room Cave"

## Tuesday July 5<sup>th</sup>

### **SESSION V**

Chair: *Cornelia Denz (University of Muenster, Germany)*

9:30 – 10:30: **Michael Berry** (University of Bristol, UK) *invited*  
*"Four geometrical-optics illusions"*

10:30 – 10:45 Izzatjon Allayarov (Leibniz University Hannover)  
*"On the Perspectives of Dynamic Kerker Effect in Nonmetal Single Nanoparticles"*

10:45: 11:15: *Coffee Break*

11:15 – 12:15: **Alexandra Boltasseva** (Purdue University) *invited*  
*"Machine-Learning-Assisted Photonics"*

12:15 – 12:30 Hanan Herzig Sheinfux (ICFO, Spain)  
*"Multimodal interference and bound in the continuum modes in indirectly-patterned hyperbolic cavities"*

12:30 – 12:45 Christian Lanza (University of Oviedo, Spain)  
*"Twist-tunable Polaritonic Nanoresonators in a van der Waals Crystal"*

12:45 – 13:00 Luca Sortino (Ludwig-Maximilians-Universität München, Germany)  
*"All-dielectric nanophotonics with Transition Metal Dichalcogenides semiconductors"*

13:00 – 16:00: Lunch Break and Free Time

### **SESSION VI**

*Chair: Rupert Huber (University of Regensburg, Germany)*

16:00 – 17:00: **Carlo Sirtori** (Ecole Normale Supérieure, France) *invited*  
*"Metamaterial enhanced THz devices"*

17:00 – 17:15 Martin Micica (Ecole Normale Supérieure, France)  
*"THz Emission from Nanometer Thick Spintronic Heterojunctions"*

17:15 – 17:30 Jihye Baik (Ecole Normale Supérieure, France)  
*"Intracavity Second Harmonic Generation in Quantum Cascade Lasers"*

17:30 – 17:45 Valentino Pistore (CNR-NANO Italy)  
*"Terahertz frequency comb-based hyperspectral near-field imaging and spectroscopy"*

17:45 – 18:00 Andreas Aigner (Ludwig-Maximilians-Universität München, Munich, Germany)  
*"Tailoring light-matter coupling in a plasmonic nanofin metasurface harnessing bound states in the continuum"*

19:30 - 21:30 Dinner

21:30: Sicilian cakes, marsala and piano music in the "Marsala Room Cave"

## **Wednesday July 6<sup>th</sup>**

### **SESSION VII**

*Chair: Alexandra Boltasseva (Purdue University, USA)*

9:30 – 10:30 **Monika Ritsch-Marte** (Medical University of Innsbruck (Austria), *invited*  
*"Structuring Light for Direct Measurement of Optical Force and Torque"*

10:30 – 11:00: *Coffee Break*

11:00 – 12:00 **Diederik Wiersma** (INRIM and University of Florence) *invited*  
*"Spectral super-resolution spectroscopy using a random laser"*

12:00 – 12:15 Alessandra Di Gaspare (CNR –NANO, Italy)  
*"Hyperspectral nano-imaging in the THz range with low spatially coherent multimode random lasers"*

12:15 – 12:30 Oisín Garrity (Freie Universität Berlin, Germany)  
*"Studying Light Matter Coupling and the Dielectric Function of van der Waals Materials by Near Field Optical Microscopy and Tip Enhanced Spectroscopy"*

12:30 – 13:45: *Lunch Break*

14:30 – 23:00: Excursion and Dinner

*Visit to the archeological site of Selinunte (Selinus), an ancient Greek city in front of the Mediterranean sea, followed by a swimming and dinner at the nearby beach of Marinella.*

## **Thursday July 7<sup>th</sup>**

### **SESSION VIII**

*Chair: Carlo Sirtori (Ecole Normale Supérieure, France)*

9:30 – 10:30: **Rupert Huber** (University of Regensburg, Germany) *invited*  
*"Sculpting quantum trajectories with light fields"*

10:30 – 10:45 Thomas Weber (Ludwig-Maximilians-Universität München, Germany)  
*"Strong coupling with WS<sub>2</sub>-intrinsic bound states in the continuum"*

10:45: 11:15: *Coffee Break*

11:15 – 12:15: **Rainer Hillenbrand** (NanoGune, Spain) *invited*  
*"Real-space IR and THz nanoimaging of hybrid polaritons"*

12:15 – 12:30 Kirill Voronin (Donostia International Physics Center, San Sebastian Spain)  
*"Active Tuning of Highly Anisotropic Phonon Polaritons in Van der Waals Crystal Slabs by Gated Graphene"*

12:30 – 12:45 Konstantin G. Wirth (Aachen University, Germany)  
*"Identification of ABCB stacked tetralayer graphene by near-field spectroscopy of interband transitions"*

12:45 – 13:00 Eva A.A. Pogna (CNR-NANO, Italy)  
*"Near-field Mapping of THz Polaritons Propagation in Topological Insulators and Black Phosphorus"*

13:00 – 16:00: Lunch Break and Free Time

### **SESSION IX**

*Chair: Evelyn Hu (Harvard University, USA)*

16:00 – 16:30: **Hatice Altug** (Ecole Polytechnique fédérale de Lausanne, Switzerland) *invited*  
*Applications of Nanophotonic Metasurfaces for Optical Biosensing, Spectroscopy and Bioimaging*

16:30 – 17:30: **Antonio Ambrosio** (IIT, Italy) *invited*  
*Dynamic light-engineering platforms based on flat optical devices*

17:00 – 17:15 Sabrina Juergensen (University of Berlin, Germany)  
*"Collective States in Organic 2D-Materials"*

17:15 – 17:30 Giacomo Venturi (IIT Milan, Italy)  
*"Imaging van der Waals Forces in a Twisted 2D Material"*

17:30 – 17:45 Nathaniel Capote-Robayna (Donostia International Physics Center, San Sebastian Spain)  
*"Twisted Polaritonic Crystals in Thin Van der Waals Slabs"*

17:45 – 18:00 Armando Genco (Politecnico di Milano, Italy)  
*"Nonlinear Interactions of Dipolar Excitons and Polaritons in MoS<sub>2</sub> Bilayers"*

20:00 - 22:30: **Conference Banquet**

## **Friday July 8<sup>th</sup>**

## **SESSION X**

*Chair: Hatice Haltug (Ecole Polytechnique federale de Lausanne, Switzerland)*

9:15– 10:15: **Costantino De Angelis** (University of Brescia), *invited*  
*"Reconfigurable nonlinear photonic metasurfaces"*

10:15 – 10:30 Marta Mastrangelo (Ecole Normale Superieure, Paris France)  
*"Optimization of patch-antenna metamaterial for the realisation of quantum cascade laser arrays"*

10:30: 11:00: *Coffee Break*

## **SESSION XI**

*Chair: Rainer Hillenbrand (NanoGune, Spain)*

11:00 – 12:00: **Michele Tamagnone** (IIT, Italy) *invited*  
*"Polaritonic Resonators in 2D and van der Waals Materials"*

12:00 – 12:15 Matej Sebek (Technical University of Denmark)  
*"Terahertz-lightwave induced electron field emission from graphene"*

12:15 – 12:30 Matteo Tiberi (Cambridge Graphene Center, UK)  
*"Wafer-scale integration of graphene on silicon-on-insulator"*

12:30 – 12:45 José A. Arcos-Pareja (Freie Universität Berlin, Germany)  
*"Surface enhanced Raman scattering of graphene by higherorder plasmon modes"*

12:45 – 13:00 Elaheh Mostaani (Cambridge Graphene Center, UK)  
*"Charge-carrier complexes in monolayer semiconductors"*

13:00 – 13:15: *Closing Remarks*

13:15 – 15:00 *Traditional Closing Sicilian Lunch*

19:00 - 21:00 *Dinner*

21:30: *Sicilian cakes, marsala and piano music in the "Marsala Room Cave"*