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**Sunday June 25th**

09:00 - 16:00 Arrival and Registration

12:00 - 14:00 Lunch

16:45– 17.15: **Giorgio Benedek**, **Sukhdeep Dhillon, Oleg Mitrofanov, Alessandro Tredicucci, Miriam S. Vitiello**

*Opening remarks*

***SESSION I*** *Industrial Session*

*Chair: Eric Gornik (Technical University of Vienna)*

17:15 – 17:35 Lauren Gingras (Menlo Systems)

*“A versatile, scientific terahertz platform to tackle quantum research”*

17:35 - 17:55 Davide Di Marzio (Keysight technology)

*“Keysight initiative for supporting advances in Infrared and THz Quantum Research”*

17:55 – 18:15 Daniel Ciofu (Swiss Terahertz)

“*Real Time Terahertz Imaging Spectrometer”*

18:15 – 18:35 T. Grange (Next Nano)

*“Improving the modeling of pure dephasing in quantum cascade devices”*

19:30 – 21:30: Dinner

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

**Monday June 26th**

***SESSION II***

***Bi-dimensional quantum materials***

*Chair: Oleg Mitrofanov (UCL, London)*

9:00 – 10.00: **Stephanie Law** (Penn State University, USA) *invited*

*“Semiconductors and Topological Insulators for Infrared and Terahertz Metamaterials”*

10:00 – 10:15 S. Ayari (Ecole Normale Superieure, France)

“*Layer-controlled optical and electronic properties in Platinum diselenide PtSe2”*

10:15 – 10:30 M. Hemmat (Ecole Normale Superieure, France)

*“Atomic Layer-controlled Nonlinear Terahertz Valleytronics in Dirac Semi-metal and Semiconductor PtSe”*

10:30 – 10:45 C.S. Knox (University of Leeds, UK)

*“Control of surface and bulk conductivity in topological insulator films”*

10:45 – 11:00 A. Nivedan (Indian Institute of Technology Delhi, India)

*“Enhanced THz Emission from Single Crystals of Bi2Te3 and Bi2Se3 Topological Insulator at Lower Excitation Wavelengths”*

11:00: 11:30 *Coffee Break*

***SESSION III***

***Terahertz frequency lasers***

*Chair: David Burghoff (University of Notre Dame, USA)*

11:30– 12:30: **Paul Chevalier** (Harvard University, USA) *invited*

*“The Quantum Cascade Laser Pumped Molecular Laser: A Widely Tunable THz Source”*

12:30 – 12:45 M. Wienold (DLR, Germany)

 “*OSAS-B: A 4.7-THz Heterodyne Spectrometer for Probing Atmospheric Atomic Oxygen from a Balloon”*

12:45 – 13:00 E. Morag (UCLA, USA)

*“Disordered metasurface quantum-cascade VECSELs”*

13:00 – 15:00: Lunch Break and Free Time

***SESSION IV***

***Mid-IR optoelectronics***

*Chair: Alessandro Tredicucci (University of Pisa, Italy)*

15:00 – 16:00: **Angela Vasanelli** (Ecole Normale Superieure, France) *invited*

*“Electrically controlled optical properties of semiconductor nanostructures for mid-infrared optoelectronics”*

16:00-16:15 S. Barbieri (CNRS and University of Lille France)

*“Mid-infrared quantum well photodetectors with 100GHz 3dB bandwidth at room temperature”*

16:15-16:30 A. Haky (Ecole Normale Superieure, France)

“*Establishing the Ground State of a Multisubband Plasmon”*

16:45-17:00 L. Del Balzo (Ecole Normale Superieure, France)

*“Mid- Infrared phase modulation using Stark-effect unipolar quantum devices”*

17:00- 17.15: *coffee break*

17:15 – 17:30 J. Frigerio (Politecnico di Milano, Italy)

*“Mid-infrared nonlinear photonics with Ge/SiGe quantum wells”*

17:30 – 17:45 M. Piotrowski (Technical University of Vienna, Austria)

*“Flip chip Integration of Mid infrared Lab on a chip for Gas Sensing”*

17:45 – 18:00 J.Gröbmeyer (Walter Schottky Institute, Munich, Germany)

 *“Nano-Gaps for Ultrafast Photoemission and Space-Charge Limited Currents”*

18:00 – 18:15 T.H. Dang (ENS and Sorbonne University, France)

*“Nanocrystal-based active photonic devices”*

19:30 - 21:30: Dinner

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

**Tuesday June 27th**

***SESSION V***

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

***Quantum optics***

9:00 – 10.00: **Alfred Leitenstorfer** (University of Konstanz, Germany) *invited*

*“Time Domain Quantum optics”*

10:00 – 10:15 F. Pisani (ENS, Paris)

“*Electronic transport driven by collective light-matter coupled states in a quantum device”*

10:15 – 10:30 S. De Liberato (University of Sauthempton, UK)

 *“Sculpting electronic and photonic wavefunctions using light-matter hybridization”*

10:30 – 10:45 J. Chen (Nanjing University,China)

“*Superconducting Quantum Capacitance Detectors at Terahertz Waveband”*

10:45: 11:15 *Coffee Break*

***SESSION VI***

*Chair: Qing Hu (MIT, USA)*

***Terahertz frequency quantum detectors***

11:15 – 12:15: **Mona Jarrahi** (UCLA, USA) *invited*

*“Plasmonic camera for hyperspectral THz imaging”*

12:15 – 12.30 J. Łusakowski (University of Warsaw, Poland)

*“Cadmium Telluride Quantum Wells as Detectors* *and Emitters of Terahertz radiation”*

12:30 – 12:45 L. Viti (CNR-NANO, Italy)

*“Room-Temperature, Graphene Photodetectors for THz Wireless Communication”*

12:45 – 13:00 R. Chen (University of Cambridge, UK )

*“Study of Terahertz Photoelectric Tunable-step Detectors: Influence of Antenna Geometry on Performance”*

13:00 – 15:00: Lunch Break and Free Time

***SESSION VII***

*Chair: Sukhdeep Dhillon (ENS, Paris France)*

***Ultrafast and near field Terahertz light-matter interaction***

15:00 – 16:00: **Tobias Kampfrath** (University of Berlin, Germany) *Invited*

“*Probing and controlling ultrafast magnetism with terahertz electromagnetic pulses*”

16:00-16:15 N. Beerman (University of Bielefeld, Germany)

*“Disentangling Complex Current Pathways in Metallic Nanostructures Using THz Spectroscopy”*

16:15-16:30 M. Huber (University of Regensburg, Germany )

*“Tracing Charge Carrier Dynamics and Correlations in 2D Systems with Ultrafast Terahertz Nanoscopy”*

16:45-17:00 I. Ilyakov (HZDR,Germany)

*“Electrically Gated Ultrafast Terahertz-to-Visible Light Conversion in Graphene Metamaterials”*

17:00 – 17:15 O. Mitrofanov (UCL London UK)

*“Near-field characterization of plasmon-polaritons in dipole antenna resonators made of Bi2Se3”*

**17.15 – 19.15 Poster Session and coffee break**

20:00 - 21:30: Dinner

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

**Wednesday June 28th**

***SESSION VIII***

*Chair: Monica De Seta (University of Roma 3, Italy)*

***Silicon Germanium photonics***

9:00 – 10.00 **Delphine Marris Morini** (Université Paris-Saclay, France), *invited*

*“Graded index Silicon Germanium photonics circuits in the mid-infrared range”*

10:00 – 10:15 M. Ortolani (Sapienza University of Rome, Italy)

“*Strong light-matter coupling in SiGe quantum wells embedded in terahertz patch antenna cavities”*

10:15 – 10:30 E. Talamas-Simola (University of Roma Tre, Italy)

“*Theoretical investigation of second harmonic generation in Ge/Si-Ge quantum wells in the terahertz”*

10:30 – 10:45 *Coffee Break*

***SESSION VIII***

*Chair: Dmitry Turchinovic (Bielefeld University, Germany)*

***Condensed matter physics at THz frequency***

10:45: 11:45 **Stefano Bonetti** (Stockholm University, Sweden), *invited*

*“Terahertz surprises in condensed matter: nutating magnets, coherent phonons and magnetic metamaterials”*

11:45 – 12:00: A. Di Gaspare (CNR-NANO, Italy)

*“Third harmonic generation at 9.6 THz in single layer graphene embedded into a 3.2 THz split ring resonator”*

12:00 – 12.30 S. Zanotto (CNR-NANO, Italy)

*“Plasmon confinement and non-Drude behavior in strained polycrystalline graphene: experimental and atomistic studies”*

12:30 – 12:45 J. Weidelt (University of Bielefeld, Germany)

“*Conduction Mechanism in Polymer-based Electrolytes with Lithium Salts studied by Terahertz Spectroscopy”*

12:45 – 13:00 A. Singh (Institute of Physics Czech Academy of Sciences, Czech Republic)

 “*Terahertz Plasmons in Periodic Structures of Epitaxial Graphene”*

13:00 – 14:30 *Lunch Break*

14:45 – 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 on the beach***

**Thursday June 29th**

***SESSION IX***

***Terahertz quantum cascade lasers***

*Chair: Alfred Leitenstorfer (University of Konstanz, Germany)*

9:00 – 10.00: **Qing Hu** (MIT, Boston USA) *invited*

*“High-temperature THz QCLs and broadband LWIR QCL frequency combs”*

10:00 – 10:15 M. Shahili (UCLA, USA)

*“GaAs-based Quantum Cascade Laser Emitting above 5 THz”*

10:15 – 10:30 C. Song (Ecole Normale Superieure, France)

“*High-power density, single plasmon, terahertz quantum cascade lasers via transverse mode control”*

10:30 – 10:45 L. Seitner (Technical University of Munich, Germany)

*“Numerical Simulation of Short Pulse Generation in THz* *Quantum Cascade Lasers”*

10:45 – 11:00 M. Salih (University of Leeds, UK)

“*Integration of a 2.1-THz Quantum Cascade Laser within a Fundamental Metallic Rectangular Waveguide”*

11:00 - 11:30 *Coffee Break*

***SESSION X***

***Frequency combs***

*Chair: Stefano Barbieri (CNRS, University of Lille)*

11:30 – 12:30: **Paolo De Natale** (CNR-INO, Italy) *invited*

*“Characterizing comb emissions in view of novel applications”*

12:30 – 12.45 J. Popp (Technical University of Munich, Germany)

“*Modeling of Self-Starting Harmonic Mode-Locking in THz Quantum Cascade Lasers”*

12:45 – 13:00 P. Abajyan (Ecole Normale Superieure, France)

“*Frequency Combs based on Single Section Interband Cascade Lasers”*

13:00 – 15:00: Lunch Break and Free Time

***SESSION XI***

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

15:00 – 15:30: **Oliver Graydon** (Editor in Chief Nature Photonics) *invited*

*“Trend in scientific publishing”*

***SESSION XII***

***Polaritons***

*Chair: Raffaele Colombelli (University of Paris Saclay France)*

15:30 – 15:45 E. Cortese (University of Southampton, UK)

*“Non-local effects and re-confinement of polariton modes in deep sub-wavelength resonators”*

15:45 – 16:00 E. Cosentino (Univ. Paris Saclay, France)

*“Low Intensity Saturation of an ISB Transition by a Mid-IR Quantum Cascade Laser”*

16:00-16:15 T. Krieguer (Ecole Normale Superieure Paris France)

“*A density-matrix model for intersubband devices operating in the ultra-strong light-matter coupling regime”*

16:15-16:30 J.M. Manceau (Univ. Paris Saclay, France)

*“THz ultra-strong light-matter coupling down to 1.2 THz with continuously graded parabolic quantum wells”*

17:00 – 17:15 E. Plankenbichler (Technical University of Vienna)

*“Dark Vertical Transport of Electrons in Polaritonic Semiconductor Heterostructures”*

17:15-17:35 Coffee break

***SESSION XIII***

***Mid-IR Quantum cascade and interband cascade laser***

*Chair: Gottfried Strasser (Technical University of Vienna, Austria)*

17:35 – 17:50 A. Windischhofer (Technical University of Vienna, Austria)

*“Exploring Gain Dynamics and Passive Mode-Locking Abilities in Interband Cascade Lasers”*

17:50 – 18:05 S. Suri (Univ. of Wisconsin-Madison,USA)

*“Graded-Interfaces Modeling: Tool for Understanding and Designing Record-High Power and Efficiency Mid-IR QCLs*

18:05 – 18:20 A.M Andrews (Technical University of Vienna, Austria)

*“Anomalous temperature dependency of current-voltage curves in low-doped weakly-coupled superlattices”*

18:20 – 18.35 Réka-Eszter Vass (ETH, Zurich Switzerland)

*“Symmetry Breaking in Quantum Cascade Lasers with Circular Cavities”*

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

**Friday June 30th**

***SESSION XIV***

***Quantum information***

*Chair: Paolo De Natale (CNR-INO, Italy)*

9:00 – 10.00: **Roberto Morandotti** (INRS-EMT, Quebec Canada)

*“Leveraging telecom architectures for scalable and practical quantum information processing”*

10:00 – 10:15 E. Peytavit (University of Lille, France)

 “*Optoelectronic THz mixer based on iron-doped InGaAs* *embedded in a plasmonic microcavity”*

10:15 – 10:30 C. Yoo (JPL, Pasadena USA)

“THz Mixing at 2.52 THz in Single GaAs/AlGaAs Quantum-Well Heterostructures”

10:30: 11:00 *Coffee Break*

***SESSION XV***

***Integrated photonics***

*Chair: Roberto Morandotti (INRS-EMT, Quebec Canada)*

11:00 – 12:00: **David Burghoff** (University of Notre Dame, USA) *invited*

*“Hybrid passive integrated photonics in the long wave-infrared”*

12:00 – 12.15 L. Viti (CNR-NANO, Italy)

*“Measuring the Lattice Temperature of a Terahertz Quantum Cascade Laser with an Integrated Graphene Thermometer*

12:15 – 12:30 A. Albo (Bar-Ilan University,Israel)

“*Extraction of the electron excess temperature in Terahertz Quantum Cascade Lasers from laser characteristics”*

12:30 – 13:00 R.A. Khabibullin (Moscow Institute of Physics and Technology, Russia)

*“MOVPE-grown terahertz quantum cascade lasers with two-photon design”*

13:00 – 13:15 H. Němec (Institute of Physics of the Czech Academy of Sciences, Czech Republic)

*“Nanoscale Charge Dynamics in GaAs Nanobars Investigated by Terahertz Spectroscopy”*

13:15 – 15:00 Traditional Closing Sicilian Lunch

15:00 – 16.00Award ceremony and post deadline talks

**Post deadlines oral presentations**

Best oral contributions

Best poster contributions

16:00 – 16:30 Closing remarks

19:00 - 21:00 **Closing Dinner**

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