

| Sunday Sept. 3 <sup>rd</sup> |                                    | Monday Sept. 4 <sup>th</sup>          |   | Tuesday Sept. 5 <sup>th</sup>                               |   | Wednesday Sept. 6 <sup>th</sup>       |  | Thursday Sept. 7 <sup>th</sup>                    |  | Friday Sept. 8 <sup>th</sup>                                 |   |
|------------------------------|------------------------------------|---------------------------------------|---|---|---|---------------------------------------|--|---|--|--|---|
|                              |                                    | <b>Integrated Photonics</b>           |   | <b>Frequency Comb and Optical power build up approaches</b> |   | <b>Direct Absorption Spectroscopy</b> |  | <b>Spectroscopy for Atmospheric Applications</b>  |  | <b>Sensing for Bio, Food, and Petrochemical Applications</b> |   |
|                              |                                    | 09:00 - 09:15                         | Opening: V. Spagnolo, M. Grande and W. Whelan Curtin  | 09:00 - 09:30   | J. Faist - Integrated optical frequency combs for mid-infrared spectroscopy                                       | 09:00 - 09:30                         | S. Cristescu - Optical absorption spectroscopy applied for trace gas sensing   | 09:00 - 09:30                                     | G. Wysocki - Drone-assisted spectroscopic detection of trace-gas plumes – new technologies and emerging applications   | 09:10 - 09:30  | M. Wolff - Photoacoustics analysis of methane isotopologues   |
|                              |                                    | 09:15 - 09:45                         | M. Belkin - Mid-infrared photonics integration on InP   | 09:30 - 09:50   | M. Marangoni - High-speed dual-comb spectroscopy in the 8-12 um region  | 09:30 - 09:50                         | P. De Natale - Molecular detection with a sensitivity of parts per quadrillion   | 09:30 - 09:50                                     | M. Ghysels Dubois - Around the "atmospheric world" under a balloon : a long-duration observation of the equatorial tropopause with the Pico-SDLA tunable diode laser spectrometers | 09:30 - 09:50  | C. Cordero - Challenges and Opportunities from Food Volatilomics: Sensing the Quality   |
|                              |                                    | 09:45 - 10:05                         | I. Cristiani - Photonic integrated circuits for laser frequency stabilisation   | 09:50 - 10:10   | K. Cossell - Atmospheric measurements using open-path mid-infrared dual-comb spectroscopy                         | 09:50 - 10:10                         | J. Toivonen - Fourier transform photoacoustic spectroscopy with broadband supercontinuum lasers  | 09:50 - 10:10                                     | W. Chen - Cavity enhanced optical sensing of the atmosphere  | 09:50 - 10:10  | L. Dong - Calibration-free Mid-infrared Exhaled Breath Sensor based on BF-QEPAS for Non-invasive Diagnosis  |
|                              |                                    | 10:05 - 10:25                         | F. Francis - Holographic metasurfaces for biophotonics and sensing applications   | 10:10 - 10:25   | M. Kotlyar - Optical Build up cavities for Indirect spectroscopy fabricated using silicon processing technologies | 10:10 - 10:25                         | R. Krebbers - Mid-infrared supercontinuum-based Fourier transform spectroscopy for multispecies open-path measurements   | 10:10 - 10:25                                     | B. Tuzson - Recent advances in VOC analysis by mid-IR laser spectroscopy   | 10:10 - 10:25  | M. Olivieri - H2 detection based on wavelength modulation and multipass absorption spectroscopy   |
|                              |                                    | 10:25 - 10:40                         | J.H.M. Castro - Control of Fano Spectral Profile based on a Silicon Nitride Photonic Crystal-Micro Ring Resonator structure                           | 10:25 - 10:40   | S. Sam - Bow-Tie Cavity for I-QEPAS for Isotope Analysis: Design and Optimization                                 | 10:25 - 10:40                         | G. Menduni - Quartz Enhanced Photoacoustic Spectroscopy and Light Induced Thermoelastic Spectroscopy for natural gas composition analysis                          | 10:25 - 10:40                                     | D. Theiner - Flexible molecular gas sensing platform in the terahertz domain   | 10:25 - 10:40  | H. Moser - ATEX compliant, FPGA based three-channel quantum cascade laser sensor for sulfur species detection in petrochemical process streams      |
|                              |                                    | 10:40 - 11:00                         | Coffee Break  | 10:40 - 11:00   | Coffee Break  | 10:40 - 11:00                         | Coffee Break   | 10:40 - 11:00                                     | Coffee Break   | 10:40 - 11:00  | Coffee Break  |
|                              |                                    | <b>Infrared Sources and Detectors</b> |   | <b>Industrial Session</b>                                   |   | <b>Photothermal Spectroscopy</b>      |  | <b>Quartz-Enhanced Photoacoustic Spectroscopy</b> |  | <b>Spectroscopic Applications</b>                            |   |
|                              |                                    | 11:00 - 11:20                         | P. Chevalier - The quantum cascade laser pumped molecular laser: a widely tunable source from 100 GHz up to more than 3 THz                           | 11:00 - 11:20   | M. Brandstetter - Digital infrared spectroscopy: fast and flexible spectral and hyperspectral measurements        | 11:00 - 11:30                         | P. Burgholzer - Fundamental limits to spatial resolution in photothermal imaging   | 11:00 - 11:20                                     | Y. Ma - Quartz-tuning-fork based Laser Spectroscopy for Trace Gas Detection  | 11:00 - 11:20  | A. Castillo - Comb-assisted frequency-stabilized cavity ring-down spectroscopy: application to ultra-sensitive detection of water vapour and beyond |
|                              |                                    | 11:20 - 11:40                         | Q. Wang - Broadband Room-Temperature Mid-Infrared Detection with Nanoparticles  | 11:20 - 11:35   | R. Aidam - Neogly, QCL-based continuous glucose monitoring device   | 11:30 - 11:50                         | M. Franko - Recent Progress and Applications of Thermal Lens Spectrometry in Environmental and Bio-medical Sensing   | 11:20 - 11:35                                     | P. Patimisco - Multi-QCL Quartz-Enhanced Photoacoustic Sensor for Environmental Monitoring   | 11:20 - 11:35  | I. Gazizov - Improved Heterodyne Spectroradiometer: A Leap Towards Precise XCO2 Measurements  |
|                              |                                    | 11:40 - 11:55                         | D. Pinto - Long wavelength distributed feedback tapered quantum cascade lasers  | 11:35 - 11:50   | THORLABS - N. Reusch - Gas Spectroscopy at Thorlabs – From Prisms to QEPAS  | 11:50 - 12:05                         | K. Krzempek - Photothermal gas detection using a miniaturized fiber Fabry-Perot cavity   | 11:35 - 11:50                                     | K. Kinjalik - Highly Selective Toluene Detection using Quartz Enhanced Photoacoustic Spectroscopy at $\lambda = 13.71 \mu\text{m}$   | 11:35 - 11:50  | A. Walsh - Evanescent wave quartz enhanced photoacoustic spectroscopy employing a side-polished fibre for methane sensing                           |
|                              |                                    | 11:55 - 12:10                         | M. Paparella - Numerical and experimental analyses of optical coupling for GaSb diode lasers grown on Silicon substrate                               | 11:50 - 12:05   | MCQ - G. Canuti - All-in-one Gas mixer and pressure controlling system for spectroscopy                           | 12:05 - 12:20                         | J. Wacławek - Compact Trace Gas Detection by Balanced-Detection ICAPS  | 11:50 - 12:05                                     | M. Ruizl - QEPAS sensor for Surveying the Atmospheric Carbon Cycle   | 11:50 - 12:05  | G. V. B. Lukaszewicz - Photothermal Lens and Photothermal Mirror Techniques: Effects and Applications for Material Characterization                 |
|                              |                                    | 12:10 - 12:25                         | J. Fordyce - Extended wavelength tuning of multi-section interband cascade lasers with slotted waveguides above 3 $\mu\text{m}$                       | 12:05 - 12:20   | NANOPLUS - R. Weh - Long Wavelength Cascade Laser Technology for Sensing Applications                             | 12:20 - 12:35                         | G. Malvicini - Balanced – Interferometric Cavity Assisted Photothermal Spectroscopy with low – cost telecoms wavelength lasers for environmental and food analysis | 12:05 - 12:20                                     | E. Kniazeva - Ultra-compact QEPAS sensors for environmental detection of toxic gases and development of novel near-IR DFB laser diodes for photoacoustic spectroscopy              | 12:05 - 12:20  | G. Ricchiuti - Photothermal Spectroscopy (PTS) of PMMA thin layer using micro-ring resonators (MRRs)  |
|                              |                                    | 12:25 - 12:40                         | R. De Palo - Surface Modification of Quartz-Tuning Forks for Light-Induced-Thermoelastic Spectroscopy   | 12:20 - 12:35   | ETG - F. Manassero - TDL,ICL, QCL Qepas gas analyser  | 12:35 - 12:50                         | Y. Zhang - Controlling Spatial Resolution and Sensitivity in Nanoscale Chemical Imaging by Photothermal-Induced Resonance Spectroscopy                             | 12:20 - 12:35                                     | G. Biagi - Study of ammonia adsorption and desorption phenomena in a QEPAS sensor  |  |   |
|                              |                                    | 12:45 - 14:30                         | Lunch   | 12:45 - 14:30   | Lunch   | 12:55 - 14:30                         | Lunch  | 12:40 - 14:30                                     | Lunch  | 12:40 - 14:30  | Lunch   |
| 14.30 - 18.00                | PARTICIPANTS ARRIVAL FROM AIRPORTS | <b>Hybrid Sources and Fibers</b>      |   | 14.30-16.30   | <b>POSTER SESSION</b>   | <b>Photoacoustic Spectroscopy</b>     |  | 15.00-19.00                                       | <b>SOCIAL ACTIVITY VISIT TO MATERA</b>   | 14-30 -19.00   | <b>PARTICIPANTS TRANSPORTATION TO AIRPORTS</b>  |
|                              |                                    | 14:30 - 14:50                         | U. Willer - Evanescent-field fiber sensors  |   |   | 14:30 - 14:50                         | M. Sigrist - Photoacoustic detection overview, from past to present  |   |  |  |   |
|                              |                                    | 14:50 - 15:05                         | P. Jaworsky - Antiresonant Hollow-Core Fiber and Kagome Hollow-Core Fiber assisted Wavelength Modulation Spectroscopy of ethane in the mid-IR         |   |   | 14:50 - 15:10                         | T. Rueck - From Lab to Application – Digital Twins of Photoacoustic Gas Sensors  |   |  |  |   |
|                              |                                    | 15:05 - 15:20                         | A. Vorobev - Graphene Electrodes on Silicon Nitride Devices for Near-Infrared Wavelength Tuning   |   |   | 15:10 - 15:30                         | R. Li Voti - Photoacoustic Characterization of Metal Nanoparticles Super-Aggregates  |   |  |  |   |
|                              |                                    | 15:20 - 15:35                         | G. Paikath - Photonic crystal hybrid lasers for intra-cavity Quartz Enhanced Photo-Acoustic Spectroscopy (QEPAS) and Photo-Thermal Spectroscopy (PTS) |   |   | 15:30 - 15:45                         | S. Borri - A doubly-resonant cantilever-enhanced photoacoustic sensor for trace-gas detection  |   |  |  |   |
|                              |                                    | 15:35 - 15:50                         | A. Annunziato - Optical Fiber Couplers Based on Indium Fluoride Optical Fibers  |   |   | 15:45 - 16:00                         | J. Fekete - Open photoacoustic cell for measurement of water vapor flux  |   |  |  |   |
| 18.00-19.30                  | WELCOME PARTY DINNER               |                                       |   |   |   | 16:00 - 16:15                         | L.S. Li - Multiscale photoacoustic tomography of genetically encoded photoswitchable proteins  |   |  |  |   |
| 19.30-21.00                  |                                    | DINNER                                | PIZZA DINNER  | DINNER  | SOCIAL DINNER   |                                       |  |   |  |  |   |

L.S. Li - Multiscale photoacoustic tomography of genetically encoded photoswitchable proteins