

Sunday September 11th

16.30-18.30 Registration

19.00 Welcome Cocktail

Monday September 12th

09:00-09:15 G. Scamarcio and A. Tredicucci

Welcome and Opening remarks

09:15-10:35 Mid-IR QCLs I Chair: J. Faist

09:15-09:35 A.M. Andrews *"Growth of Mid-infrared InGaAs/GaAsSb QCLs emitting around 11 μ m"*

09:35-09:55 X. Huang *"Temperature-insensitive Long-wavelength ($\lambda \approx 14 \mu$ m) Quantum Cascade Lasers with Low Threshold"*

09:55-10:15 A. Bismuto *"Sb-free InGaAs/InAlAs-AlAs quantum-cascade laser with watt-level emission at 3.3 μ m running up to 350 K"*

10.15-10.35 P.Q. Liu *"Single-mode Quantum Cascade Lasers with Monolithic Coupled-cavities"*

10.35-11.00 Coffee Break

11.00-12.30 Mid-IR QCLs II Chair: M. Helm

11.00-11.30 Y. Yao – invited paper *"High Performance Broadband Quantum Cascade Lasers with Homogeneously Broadened Gain Media"*

11.30-11.50 A. Hugi *"Multimode instabilities of broadband quantum cascade laser operating in continuous wave"*

11.50-12.10 D. Botez *"Tapered-active, mid-infrared quantum cascade lasers for the suppression of carrier-leakage currents"*

12.10-12.30 Y. Dikmelik *"Temperature Dependence of the Transparency Current Density in Mid-Infrared Quantum Cascade Lasers"*

12.30-14.10 Lunch Break

14.10-15.30 Mid-IR QCLs and applications Chair: G. Strasser

14.10-14.30 S. Borri *"Narrow linewidth Quantum Cascade Lasers for ultra-sensitive and precise detection of molecules"*

14.30-14.50 C. Schwarzer *"Broadband single-mode and coherently emitting two-dimensional arrays"*

14.50-15.10 M. Belkin *"Mid- and far-infrared absorption micro-spectroscopy with better than 50 nm spatial resolution using quantum cascade lasers"*

15.10-15.30 V. Spagnolo *"Quantum cascade laser-based optoacoustic sensors for breath test applications"*

15.30-16.00 Coffee break

16.00-17.00 Applications II Chair: M. Belkin

16.00-16.20 Q. Yang “Detection system for hazardous chemical substances based on hetero-cascading external-cavity quantum-cascade lasers”

16.20-16.40 A. Michel “Mid-Infrared Spectroscopy of Tissue Using Quantum Cascade Lasers”

16.40-17.00 P. Dean “Terahertz imaging and displacement sensing using self-mixing in a quantum cascade laser”

17.00-17.40 Chair: H.C. Liu

Keynote Speaker – V. Pellegrini

“Engineering graphene-like Dirac-fermion minibands in nanopatterned GaAs semiconductors”

Tuesday September 13th

09.00-10.30 Polaritons I Chair: G. Scamarcio

09.00-09.30 Y.Todorov – invited paper “Collective effects and Ultra-strong light-matter coupling”

09.30-09.50 R. Degl’Innocenti “Pump-probe time resolved intersubband polaritons in suspended membrane metal gratings”

09.50-10.10 M. Geiser “Terahertz intersubband polariton electroluminescence”

10.10-10.30 G.Pizzi “Magnetic field effects on intersubband polaritons in narrow gap semiconductors”

10.30-11.00 Coffee Break

11.00 -12.50 Intersubband Detectors Chair: F. Julien

11.00-11.30 G. Strasser – invited paper “Photonic Crystal QWIP structures”

11.30-11.50 E. Benti “A Room Temperature In-line QWIP as a Detector and Passive Optical Element”

11.50-12.10 A. Vardi “Femto-second electron transit time characterization in GaN/AlGaIn quantum cascade detectors at 1.5 micron”

12.10-12.30 S. Sakr “Latest developments in GaN-based short-infrared-wavelength quantum cascade detectors”

12.30-12.50 A. Pesach “Near-infrared GaN/AlIn/AlGaIn quantum-dot cascade detector”

12.50-14.30 Lunch Break

14.30-16.00 Chair: A. Tredicucci

Keynote Speaker – T. Kippenberg

“Cavity Optomechanics: Back-action Cooling of Mechanical Oscillators”

Keynote Speaker – A.J. Kent

“Terahertz acoustic phonon amplification and sensing in semiconductor superlattices”

16.00-16.30 Coffee Break

16.30-17.50

Post-deadline session Chair: D. Botez

16.30-16.50 S. Blaser *“Three broadband quantum-cascade lasers covering the range from 6 to 12.9 μm ”*

16.50-17.10 S. Fathololoumi *“Effect of intermediate resonance on the performance of resonant phonon based terahertz quantum cascade lasers”*

17.10-17.30 G.M. de Naurois *“Coherent monolithic Quantum Cascade Laser μ -stripes array”*

17.30-17.50 C.W.I. Chan *“A terahertz quantum cascade laser operating up to 193 K”*

Wednesday September 14th

09.00-10.40 Polaritons II Chair: C. Ciuti

09.00-09.20 A. Delteil *“Optical phonon scattering of cavity polaritons in an electroluminescent device”*

09.20-09.40 G. Scalari *“Strong coupling of the cyclotron transition of a 2-DEG in a THz metamaterial”*

09.40-10.00 M. Wagner *“Coherent switching of a THz-intersubband polarization in a quantum well”*

10.00-10.20 D. Hagenmuller *“Cavity QED of magnetic cyclotron transition in a 2D electron gas”*

10.20-10.40 A. Bousseksou *“Designer’s surface-plasmon at mid-infrared frequencies”*

10.40-11.00 Coffee Break

11.00-12.50 Intersubband devices I Chair: S. Barbieri

11:00-11:20 A. Vizbaras *“Extending the spectral range of GaInAs/AlInAs/InP quantum cascade lasers by intracavity nonlinear frequency mixing”*

11.20-11.40 O. Malis *“Intersubband absorption, photocurrent, and resonant-tunnelling measurements in AlInN/GaN and AlGaIn/GaN heterostructures grown by molecular beam epitaxy on high-quality GaN substrates”*

11.40-12.00 M. Tchernycheva *“Tunability from near-infrared to THz frequencies of the intersubband absorption in cubic GaN/Al(Ga)N quantum wells”*

12.00-12.20 S. Zybelle *“Photoluminescence dynamics in GaAs/AlGaAs quantum wells under pulsed intersubband excitation”*

12.20-12.40 H. Nguyen van *“Quantum Cascade Transistor”*

12.40-14.00 Lunch Break

14.00-20.00 Excursion to Castelsardo

Thursday September 15th

09.00-10.30 THz QCLs I Chair: M.S. Vitiello

09.00-09.30 Y. Ren – invited paper “High-resolution heterodyne spectroscopy using a tunable quantum cascade laser around 3.5 THz”

09.30-09.50 M. Ravano “Absolute frequency measurement of a THz quantum cascade laser using a dual fs-fiber laser comb technique”

09.50-10.10 S. Bartalini “Frequency noise investigation of Terahertz quantum cascade lasers”

10.10-10.30 M. Yamanishi “Indirect pumping operation of THz InGaAs/InAlAs quantum-cascade-lasers”

10.30-10.50 Coffee Break

10.50-13.00 THz QCLs II Chair: B. Williams

10.50-11.20 G. Xu – invited paper “Photonic heterostructures: a new concept for high power surface emission in THz quantum cascade lasers”

11.20-11.40 T.-Y. Kao “Perfectly Phase-Matched Third-order DFB THz Quantum-Cascade Lasers”

11.40-12.00 G. Sevin “Optimization of surface emitting THz photonic-crystal QC lasers: size reduction, continuous-wave operation, increased power”

12.00-12.20 A.A. Tavallae “An active terahertz quantum-cascade metamaterial antenna”

12.20-12.40 M.S. Vitiello “High efficiency coupling of Terahertz quantum cascade lasers to the optical modes of hollow metallic waveguides and flexible PC tubes”

12.40-13.00 J. Freeman “Heterogeneous THz quantum cascade lasers: Broadband operation”

13.00-14.30 Lunch Break

14.30-16.30 THz QCLs III Chair: K. Unterrainer

14.30-15.00 N. Jukam – invited paper “Gain switching and injection seeding of terahertz quantum cascade lasers”

15.00-15.20 D. Burghoff “Gain measurements of terahertz quantum cascade lasers using independent mode-matched emitters”

15.20-15.40 M. Ravano “Phase-locking of a 2.5THz quantum cascade laser to a fs-fibre comb using a GaAs photomixer”

15.40-16.00 M. Martl “Analysis of the optical properties of terahertz quantum cascade laser with double-metal waveguide”

16.00-18.00 Coffee Break and Poster session

20.00 Social Dinner

Friday September 16th

09.00-10.30 THz QCLs IV Chair: G. Scalari

09.00-09.20 F. Julien *"Latest developments towards GaN/AlGaN THz quantum cascade lasers"*

09.20-09.40 W. Terashima *"Terahertz electroluminescence from intersubband levels in quantum cascade laser based on III-Nitride semiconductors"*

09.40-10.00 K. Ohtani *"Intersubband Terahertz Electroluminescence from InAs/AlSb Quantum Cascade Structure"*

10.00-10.20 R. Teissier *"InAs/AlSb Quantum Cascade active region for emission in the THz range"*

10.20-10.40 C. Deutsch *"Symmetric InGaAs/GaAsSb Terahertz Quantum Cascade Lasers"*

10.40-11.00 Coffee Break

11.00-12.50 Intersubband Devices II Chair: R. Teissier

11.00-11.30 L. Nevou– invited paper *"Optically driven electron pump using InAs quantum dots"*

11.30-11.50 C. Phillips *"Ultra-Efficient Solar Cells from "Photon Ratchet" ISBT-based nanostructures"*

11.50-12.10 M. Virgilio *"Intersubband Transitions in Ge/SiGe Multi Quantum Wells on Si Substrate"*

12.10-12.30 T.U.K. Dang *"Microscopic theory of two-dimensional THz spectroscopy applied to correlation effects in quantum well intersubband systems"*

12.30-14.00 Lunch Break

14.00 -15.40 Device Physics Chair: E. Gornik

14.00-14.20 C. Jirauschek *"Intrinsic linewidth analysis for terahertz quantum cascade lasers"*

14.20-14.40 Y. Song *"Practical Model for the Transport and Lasing Characteristics of Quantum Cascade Lasers"*

14.40-15.00 F. Carosella *"Free carrier absorption in quantum cascade lasers"*

15.00-15.20 A. Mátyás *"Contribution of lasing action to the current of high power mid-infrared quantum cascade lasers"*

15.20-15.40 T. V. Dinh *"Predicting the performance of Ge/GeSi quantum cascade lasers by a density matrix approach"*