

German THz Conference 2015

June 8 - 10, 2015 in Dresden, Germany



Preliminary Program

Monday, June 8, 2015

12:45 - 13:00 opening

1 Microscopy

Session Chair: Harald Schneider

13:00 - 13:30 Dimitri N. Basov (University of California)
Nano-photonic phenomena in van der Waals heterostructures

13:30 - 13:45 Miriam Böhmler (Neaspec GmbH)
THz-TDS based near-field imaging and spectroscopy at 25 nm length scale

13:45 - 14:00 Michael Nagel (Protemics GmbH)
Microprobe-enabled industrial and scientific Terahertz sensing applications

14:00 - 14:30 Rupert Huber (University of Regensburg)
Subcycle terahertz strong- and near-field interaction

14:30 - 15:00 Coffee Break

2 Invited Talk Richter

Session Chair: René Beigang

15:00 - 15:30 Heiko Richter (German Aerospace Center, DLR)
QCL as 4.7 THz Local Oscillator for SOFIA

3 High power sources

Session Chair: René Beigang

15:30 - 15:45 Michael Gensch (Helmholtz-Zentrum Dresden Rossendorf)
High-field high-repetition-rate THz sources for the coherent control of matter

- 15:45 - 16:00 Nikola Stojanovic (DESY Hamburg)
High- field THz from 4th generation light sources: THz beamline at FLASH
- 16:00 - 16:15 Jozsef A. Fülöp (MTA-PTE High-Field Terahertz Research Group)
Routes to high-energy THz pulse generation: LiNbO₃ and Semiconductors
- 16:15 - 16:30 Xiaojun Wu (DESY and University of Hamburg)
Optimized generation of strong-field Terahertz pulses at 0.8 and 1.03 μm wavelengths
- 16:30 - 16:45 Sergey Pavlov (DLR Institute of Optical Sensor Systems)
Raman scattering at Terahertz frequencies enabled by a free electron laser
- Poster Session**
16:45 - 19:00 Poster presentation

Tuesday, June 9, 2015

4 Quantum Cascade Lasers

Session Chair: Heinz-Wilhelm Hübers

- 09:00 - 09:30 Giacomo Scalari (Institute of Quantum Electronics Dept. of Physics, ETH Zürich)
Octave-spanning THz semiconductor laser for comb applications
- 09:30 - 09:45 Oliver Kliebisch (Center for Applied Photonics, Univ. of Konstanz)
Coherent Sampling and phase-locking of an actively mode-locked THz quantum cascade laser with a 10 GHz Ti:sapphire femtosecond laser for direct frequency measurements
- 09:45 - 10:00 Martin Brandstetter (Vienna University of Technology)
High power THz quantum cascade lasers for real-time imaging
- 10:00 - 10:15 Rolf Szedlak (Vienna University of Technology)
Infrared and terahertz spectroscopy with ring quantum cascade lasers
- 10:15 - 10:30 Sergej Markmann (Ruhr-Universität Bochum)
Observation of time-resolved gain dynamics in a terahertz quantum cascade laser
- 10:30 - 11:00 Coffee Break

5 Industry & applications

Session Chair: Joachim Jonuscheit

- 11:00 - 11:15 Nico Vieweg (TOPTICA Photonics AG Gräfelfing)
2 x 100 dB: Pulsed and cw-Terahertz systems at 1.5 μm wavelength
- 11:15 - 11:30 Ole Peters (Menlo Systems GmbH)
THz-TDS solutions for quality and dynamic process control in paper industry

- 11:30 - 11:45 Felix Lelchuk (Ticwave GmbH Wuppertal)
Power measurement method using a CMOS THz video camera
- 11:45 - 12:00 Thomas Morf (IBM Research Zürich)
Room temperature THz camera in micro machined CMOS
- 12:00 - 12:15 Bessem Baccouche (Fraunhofer Institute for Physical Measurement
Techniques IPM, Materials Characterization and Testing)
Terahertz volume inspection using a sparse array
- 12:15 - 12:30 David Citrin (Georgia Institute of Technology)
Delamination characterization of fiber-reinforced composite using
terahertz imaging
- 12:30 - 14:00 Lunch Break

6 Invited Talk Mittleman

Session Chair: Ben Murdin

- 14:00 - 14:30 Daniel Mittleman (Rice University)
THz Parallel-Plate Waveguides with Resonant Cavities

7 Magnetism & other spectroscopy

Session Chair: Ben Murdin

- 14:30 - 14:45 Tom Seifert (Fritz-Haber-Institute of the Max Planck Society)
Spin transport and spin-orbit interaction at terahertz frequencies:
spectroscopy and applications
- 14:45 - 15:00 Sebastian Mährlein (Fritz Haber Institute of the Max Planck Society)
Ultrafast demagnetization of a ferrimagnetic insulator driven by
resonant phonon excitation
- 15:00 - 15:15 Alexej Pashkin (University of Konstanz and Helmholtz-Zentrum
Dresden Rossendorf)
Ultrafast insulator-metal transition in VO₂ driven by high-field THz
excitation
- 15:15 - 15:30 Kamyar Saeedi Ilkhchy (Simon Fraser University and Radboud
University, FELIX)
Optical pumping and THz readout of bismuth hyperfine states in silicon
for atomic clock applications
- 15:30 - 16:00 Coffee Break

8 Detectors & sources

Session Chair: Hartmut Roskos

- 16:00 - 16:30 Miriam S. Vitiello (NEST)
Terahertz photodetectors based on two-dimensional nanomaterials

- 16:30 - 16:45 Jerzy Lusakowski (University of Warsaw)
Plasmons in GaN-, GaAs- and CdTe-based heterostructures: a half-way between a fundamental physics and THz plasmonic detectors
- 16:45 - 17:00 Alvydas Lisauskas (Goethe-University Frankfurt)
Terahertz rectification by plasmons and hot carriers in gated 2D electron gases
- 17:00 - 17:15 Sascha Preu (Technische Universität Darmstadt)
Telecom-wavelength compatible Terahertz ErAs/III-V photoconductors
- 17:15 - 17:30 Carmine Somma (Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie)
Generation of ultra-broadband transients in the organic crystal DSTMS

DTZ Annual Meeting

18:00 - 19:00 for members

Conference Dinner

19:00 at Wenzels Prager Bierstuben

Wednesday, June 10, 2015

9 Materials

Session Chair: Martin Koch

- 09:00 - 09:30 Dmitry Turchinovich (Max Planck Institute for Polymer Research)
Terahertz dynamics in graphene
- 09:30 - 09:45 Stephan Winnerl (Helmholtz-Zentrum Dresden Rossendorf)
Strong Auger scattering depleting an optically pumped Landau level in graphene
- 09:45 - 10:00 Thomas R. Arend (Ludwig-Maximilians-Universität München)
Terahertz study of hole transport in pentacene thin films
- 10:00 - 10:15 Mark D. Thomson (Goethe-Universität Frankfurt)
Elucidating the dominant scattering mechanisms of photoinduced charge-carriers in silicon at high densities
- 10:15 - 10:30 Lukas Braun (Fritz-Haber-Institute of the MPG)
Ultrafast surface shift currents in the topological insulator Bi_2Se_3 probed with broadband terahertz emission spectroscopy
- 10:30 - 11:00 Coffee Break

10 Quantum optics & spectroscopy Session

Session Chair: Alfred Leitenstorfer

- 11:00 - 11:30 Denis Seletskiy (University of Konstanz)
Birth of sub-cycle quantum optics
- 11:30 - 11:45 Ileana-Cristina Benea-Chelms (Institute for Quantum Electronics
Zürich)
Measuring spectra and photon statistics in the THz range at ultra-short
timescales
- 11:45 - 12:00 Giulia Folpini (Max-Born-Institut für Nichtlineare Optik und Kurzzeit-
spektroskopie)
Coherent control of intersubband transitions measured by two
dimensional THz/MIR spectroscopy
- 12:00 - 12:15 Shovon Pal (Ruhr-Universität Bochum)
Strong coupling of intersubband resonance in a single triangular
quantum well to a THz metamaterial
- 12:15 - 12:30 Nikolas Stavrias (Radboud University Nijmegen, Institute for Molecules
and Materials, FELIX)
Electrically detected Ramsey fringes in silicon donor impurity orbital
transitions using THz excitation
- 12:30 - 14:00 Lunch Break

11 Ralph Höpfel Memorial Symposium (preliminary)

- 14:00 Manfred Helm: Welcome and introduction
Erich Gornik: Ralph as a student
- 14:30 Benoit Deveaud (EPFL Lausanne, Switzerland)
Polaritonic spinor interactions and Feshbach resonance in
semiconductor microcavities

Jagdeep Shah: Ralph as a Postdoc (video message)
- 15:15 Coffee Break
- 15:45 Markus Oberthaler (University of Heidelberg, Germany)
What CPM-lasers have to do with entanglement in Bose-Einstein
condensates?
- 16:15 Nancy Hecker-Denschlag, Christina Messner: Ralph as a supervisor
- 16:30 Rudolf Bratschitsch (University of Münster, Germany)
Atomically thin transition metal dichalcogenides light up
- 17:00 other contributions & final remarks
- 17:15 end