

Program and proceedings online:
s.fhg.de/thz-workshop2026



Program 12th International Workshop on Terahertz Technology and Applications

March 3rd to 4th, 2026, Fraunhofer-Center,
Fraunhofer-Platz 1, Kaiserslautern, Germany

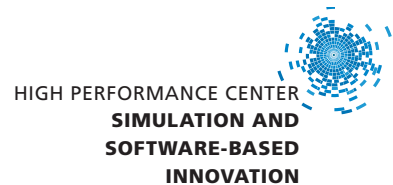
In cooperation with



DEUTSCHE
GESELLSCHAFT FÜR
ZERSTÖRUNGSFREIE
PRÜFUNG e.V.



Exhibitors and Sponsors



12th International Workshop on Terahertz Technology and Applications

Terahertz technology has proven to be a valuable tool for applications in diagnostics, measurement, and testing. The industrial use of this technology, however, raises a few challenging questions. The “International Workshop on Terahertz Technology and Applications” fosters the exchange of knowledge and experience between academics and industry in this exciting and rapidly developing field. The following renowned experts have confirmed their participation and will give invited lectures to the forum:

- Israel Arnedo, Public University of Navarra und das-Nano S.L., Tajonar, SP
- Jyotirmayee Dash, TeraLumen Solutions Pvt. Ltd., Chennai, IN
- Peter Uhd Jepsen, Technical University of Denmark, Kgs. Lyngby, DK
- Josep Miquel Jornet, Northeastern University, Boston US
- Emma MacPherson, University of Warwick, Coventry, UK
- Harrison Noel Lees, University of Adelaide, AU
- Taiichi Otsuji, ENSEMBLE3 Center of Excellence Ltd, Warszawa, PL

The twelfth workshop will address primarily the topics:

- Industrial Applications
- Homeland Security
- Communications
- Astronomy and Astrophysics
- New Terahertz System Technologies

Chairmen

- Georg von Freymann, Rhineland-Palatinate Technical University Kaiserslautern-Landau RPTU and Fraunhofer ITWM, DE
- Joachim Jonuscheit, Fraunhofer ITWM, DE

Preliminary Program

Tuesday, March 3rd, 2026

-
- 10:00 **Registration and laboratory visit at Fraunhofer ITWM**
All open laboratories can be visited freely until official opening of the workshop – without registration or guided tours.
-
- 12:00 Snack
-
- 12:50 **Welcome and opening remarks**
Georg von Freymann, RPTU Kaiserslautern-Landau, DE
- Session 1: Sources and detectors**
-
- 13:00 **Dirac plasmons in graphene-based 2D materials for terahertz lasers and detectors** (invited)
Taiichi Otsuji, ENSEMBLE3 Center of Excellence Ltd., Warszawa, PL
-
- 13:30 **Novel continuous-wave 1-11 THz radiation in the μW regime**
Jonas H. Krakofsky, TU Munich, DE
-
- 13:50 **Narrowband terahertz pulses centered at 1 THz with high average power emission ($> 0.6 \text{ mW}$) using thick quarter-wavelength cavity-based photo-conductive antennas**
Sukhdeep Dhillon, Ecole Normale Supérieure, Paris, FR
-
- 14:10 **Terahertz-wave up-conversion detection using SU(1,1) interferometer for integrated device**
Yuto Yoneda, RIKEN, Sendai, JP
- Session 2: Spectroscopy**
-
- 14:30 **Direct and difference-frequency-generation techniques for terahertz-frequency spectroscopy of gasphase deuterium exchange reactions**
Alexander Valavanis, The University of Leeds, UK
-
- 14:50 **Terahertz excitation spectroscopy for thin bismuth and tellurium layer characterization**
Ricardas Norkus, Center for Physical Sciences and Technology (FTMC), Vilnius, LT
-
- 15:10 **Terahertz InGaAs-based Schottky diode receivers for atmospheric research**
Divya Jayasankar, German Aerospace Center (DLR), Berlin, DE
-

-
- 15:30 Coffee break
- Session 3: Metrology**
-
- 15:50 **Enabling 6G and precision metrology with a comb locked ultra broadband terahertz source**
Timo Noack, Rohde & Schwarz GmbH & Co. KG, Munich, DE
-
- 16:10 **Detecting terahertz spectra of pulsed and continuous-wave signals with the photonic spectrum analyzer**
Sascha Preu, TU Darmstadt, DE
-
- 16:30 **Broadband terahertz frequency synthesis using cascaded beat-locked cw lasers and four-wave mixing for vector network analysis**
Michael Kocybik, Fraunhofer ITWM, Kaiserslautern, DE
-
- 17:00 **Poster session**
-
- 19:00 Bus transfer to hotels
-
- 19:30 Welcome drink at the “Fruchthalle”
-
- 20:00 Evening reception at the “Fruchthalle”
-

Preliminary Program

Wednesday, March 4th, 2026

8:20 Bus transfer to Fraunhofer ITWM

Session 4: Near-field Applications

9:00 **Terahertz-SNOM conductivity measurements on the nanoscale** (invited)
Peter Uhd Jepsen, Technical University of Denmark, Kgs. Lyngby, DK

9:30 **Non-destructive quality control of laser-assisted vertically integrated MEMS using photoconductive terahertz near-field microprobes**
Jan Meyne, Protemics GmbH, Aachen, DE

9:50 **High-repetition rate terahertz source for ion-field emission driving**
Alexandre Fahy, INSA Université de Rouen Normandie, Saint Etienne du Rouvray, FR

Session 5: Communication

10:10 **Unleashing the terahertz band: from near-field communications to space networks** (invited)
Josep Miquel Jornet, Northeastern University, Boston, US

10:40 **Experimental testbed of a fully electronic and network integrated 300 GHz, 100 meter point-to-point Radio Link**
Ingmar Kallfass, University of Stuttgart, DE

11:00 **Multi-gigabit optical wireless communication with a directly modulated terahertz laser**
Jayapasath Elumalai, University of Leeds, UK

11:20 Coffee break

Session 6: Various Applications I

11:40 **In vivo terahertz imaging: developing the Picobot** (invited)
Emma MacPherson, Warwick University, Coventry, UK

12:10 **Homodyne systems for terahertz non-destructive testing** (invited)
Harrison Noel Lees, University of Adelaide, AU

12:40 **Photonic integration technology for terahertz frequency-domain spectrometers**
Robert Kohlhaas, Fraunhofer HHI, Berlin, DE

13:00 Lunch break

Session 7: Various Applications II

13:30 **Advances in aerospace thickness inspection: accurate measurement for wet and dry coatings** (invited)
Israel Arnedo, Public University of Navarra und das-Nano S.L., Tajonar, SP

13:50 **Adaptive regularization methods for near real-time terahertz deconvolution in sub-wavelength coatings** (invited)
Jyotirmayee Dash, TeraLumen Solutions Private Limited, Chennai, IN

14:10 **A highly efficient and accurate terahertz 3D tomographic imaging system for complex curved-surface composites**
Kun Meng, Qingdao Quenda Terahertz Technology Co., Ltd., Qingdao, CN

14:30 **Detection of sub-resolution delamination in anti-corrosion coatings using terahertz pulsed imaging**
Vincent Wallace, University of Western Australia, Perth, AU

14:50 **Traversing thickness gauging in foil web processing using fast terahertz time-domain-spectroscopy**
Daniel Stock, University of Siegen, DE

15:10 **Closing Remarks**
Georg von Freymann, RPTU Kaiserslautern-Landau, DE

Poster Session

- P1 Terahertz investigations of superconducting nitride films**
Yayi Lin, University Stuttgart, DE
- P2 Schottky-diode based waveguide switches**
Oleg Cojocari, ACST GmbH, Hanau, DE
- P3 Synthetic aperture time-domain spectroscopy for terahertz waveguide characterizations**
Georges Humbert, XLIM research institute, Limoges, FR
- P4 A compact coherent detection method for portable terahertz sensing**
Chen Gong, Eindhoven University of Technology, NL
- P5 Terahertz power scaling for fiber-coupled terahertz TDS enabled by a 1 GHz dual-comb laser**
Alexander, Dohms, Fraunhofer HHI, Berlin, DE
- P6 Sparse terahertz sensing and thickness determination at kilohertz measurement rates with a photonic integrated frequency-domain spectrometer**
Lauri Schwenson, Fraunhofer HHI, Berlin, DE
- P7 Ultra-broadband photonic heterodyne terahertz receiver for communication and radar applications**
Milan Deumer, Fraunhofer HHI, Berlin, DE
- P8 Ultra-broadband photonic VNA with quasi-optical waveguide coupling from 75 to 750 GHz demonstrating calibrated Y-band measurements**
Garrit Schwanke, Fraunhofer HHI, Berlin, DE
- P9 Flexible high-speed and high-resolution terahertz frequency-domain spectrometer with FPGA-based real-time processing**
Florian Walter, Fraunhofer HHI, Berlin, DE
- P10 Spectral sensing by self-injection-locked terahertz oscillator arrays**
Jonas Watermann, University of Duisburg-Essen, DE
- P11 The OSAS-B terahertz heterodyne spectrometer for measuring atomic oxygen in the atmosphere**
Martin Wienold, German Aerospace Center (DLR), Berlin, DE
- P12 A compact heterodyne millimeter-wave/terahertz spectrometer for remote sensing**
Lukas Jehna, German Aerospace Center (DLR), Berlin, DE
- P13 Terahertz InGaAs-based Schottky diode receivers for atmospheric research**
Divya Jayasankar, German Aerospace Center (DLR), Berlin, DE
- P14 Electric-field induced terahertz second harmonic generation in graphene**
Jonas Woeste, Technische Universität Berlin, DE
- P15 Micro-optical bench terahertz quantum-cascade laser system**
Robert Voigt, Humboldt-Universität zu Berlin, DE
- P16 High-power coherent emission from arrays of resonant-tunneling-diode (RTD) oscillators**
Fanqi Meng, Goethe University Frankfurt, DE
- P17 Photoconductive antennas based on Ge, Ge-on-Si, and GeSn-on-Si for terahertz generation without Reststrahlenband restrictions**
Stephan Winnerl, Helmholtz-Zentrum Dresden-Rossendorf, DE
- P18 Efficient bio-sensor based on terahertz metasurface**
Maciej Sakowicz, Institute of High Pressure Physics PAS, Warsaw, PL
- P19 Revealing side-to-side nonuniformity in lithium-ion battery electrodes using dual-head terahertz sensor**
Phil Tadays, TeraView LTD, Cambridge, UK
- P20 A Fiber-Based Integrated electro-optical scheme for coherent synchrotron radiation detection at the Karlsruhe research accelerator**
Stefan Funkner, KIT, Karlsruhe, DE
- P21 Low-loss optical elements for integration into advanced terahertz systems**
Elena Mavrona, Lepto GmbH, Dübeldorf, CH

Poster Session

- P22 Development status of novel and robust power combined high power LO source at terahertz frequencies**
Maxime Missoum, LIRA - Observatoire de Paris, FR
- P23 Terahertz metasurface structures for detecting acoustic vibrations of nanoparticles with terahertz waves**
Hakan Altan, Middle East Technical University, Cankaya, TR
- P24 Terahertz-TDS and terahertz-imaging of 3D-printed PLA and ABS with varying infill density**
Krishna Kumar, MULTITEL, Mons, BE
- P25 A non-destructive terahertz method for discrimination of hydration states of hydrated salts**
Muhammad Mumtaz, National Institute of Lasers and Optronics, Islamabad, PK
- P26 Radiant-power detection for 6G communications and the long-wave infrared**
Benjamin Röben, Physikalisch-Technische Bundesanstalt (PTB), Berlin, DE
- P27 Improved terahertz reflection sensor optimized for industrial TDS applications**
Andreas Steiger, Physikalisch-Technische Bundesanstalt (PTB), Berlin, DE
- P28 Additively manufactured and dip-coated terahertz axicon lenses**
Annamarija Starsaja, Technical University of Darmstadt, DE
- P29 Integrated SiGe MMICs for frequencies above 100 GHz and their applications**
Jan Wessel, Fraunhofer FHR, Wachtberg, DE
- P30 Overcoming material and process challenges in 3D-printed terahertz components**
Abhijeet Shrotri, Technische Hochschule Ostwestfalen-Lippe, Lemgo, DE
- P31 Towards Compact additively manufactured biosensors**
Suraj Joshi, TU Darmstadt, DE
- P32 Microbridge-based reconfigurable Intelligent surface for beamforming in the Sub-terahertz band**
Steffen Klingel, RPTU Kaiserslautern-Landau, DE
- P33 Quantitative evaluation and comparison of terahertz and ultrasonic testing of glass fiber reinforced plastics**
Jens Schuster, University of Applied Sciences Kaiserslautern, DE
- P34 Characterization of doped semiconductors with THz-TDS: potential and limitations**
Joshua Hennig, Fraunhofer ITWM, Kaiserslautern, DE
- P35 Photonic terahertz FMCW radar for non-destructive characterization of Li-ion battery electrodes**
Shiva Mohammadzadeh, Fraunhofer ITWM, Kaiserslautern, DE
- P36 Sub-THz CPW optoelectronic mixer up to 500 GHz: design and conversion loss measurements**
Sakat Islam, IEMN, Lille, FR
- P37 PIC-based CW-terahertz f-theta scanner for fast imaging of 3D-printed samples**
Janis Kutz, TOPTICA Photonics SE, Gräfeling, DE
- P38 Time axis reconstruction for advanced terahertz-TDS systems**
Tobias Murawski, Ruhr University Bochum, DE
- P39 Terahertz Harmonics for Materials Research**
Jan-Christoph Deinert, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Dresden, DE
- P40 New series of standards VDI/VDE 5590 on terahertz systems**
Technical Committee FA 1.31, VDI/VDE-GMA, Düsseldorf, DE



Contact

Fraunhofer-Institut für Techno- und
Wirtschaftsmathematik ITWM

Fraunhofer-Platz 1
67663 Kaiserslautern
Germany

Phone +49(0)631/3 1600-0
E-Mail teratec@itwm.fraunhofer.de
www.itwm.fraunhofer.de/mc
www.teratec.org