APROPOS 20

Advanced Properties And Processes In Optoelectronic Materials And Systems

30 SEPTEMBER – 2 OCTOBER **2026**

VILNIUS **LITHUANIA**

PROGRAM

Tuesday (29th September)

TUTORIAL SESSION: *Vilnius University Life Sciences Centre, R402 (Saulėtekio ave. 7)*
Frontiers of Photonics & Semiconductor Technology

9:00 – 9:30 TUTORIAL WELCOME WORDS

9:30 – 11:00 **Viktor Krozer** | Ferdinand-Braun-Institut, Leibniz Institut für Höchstfrequenztechnik, Germany
Photonic-electronic heterogeneous integration technologies

11:00 – 11:15 Coffee break

11:15 – 12:45 **Alvydas Lisauskas** | Vilnius University & FTMC, Lithuania
Terahertz Generation and Detection in CMOS: State-of-the-Art, Physical Limits, and Emerging Applications

12:45 – 14:00 Lunch break

14:00 – 15:30 **Vladimir A. Zenin** | University of Southern Denmark, Denmark
Seeing light up close: Near-field Optical Microscopy

15:30 – 15:45 Coffee break

15:45 – 17:15 **Armandas Balčytis** | RMIT University & COMBS, Australia
Integrated Photonic Circuits: Enabling a New Era of Photonics

18:00 – 20:00 WELCOME RECEPTION *FTMC, Loby (Saulėtekio ave. 3)*

Wednesday (30th September)

FTMC, A101 (Saulėtekio ave. 3)

8:40 – 9:00 CONFERENCE OPENING CEREMONY

ULTRAFAST PROCESSES AND THz PHENOMENA (Chairperson Irmantas Kašalynas)

9:00 – 9:40 **Xi-Cheng Zhang** (Plenary) | University of Rochester, NY, U.S.A.
THz liquid photonics

9:40 – 10:05 **Gintaras Valušis** (Invited) | Vilnius University, Lithuania
Modern trends in compact terahertz systems and semiconductor chips

10:05 – 10:20 **Thomas B. Gill** | University of Leeds, U.K.
Chiral-Phonon Driven Ultrafast Spin Currents in a Non-Magnetic Ferroelectric

10:20 – 10:35 **Wataru Kimura** | The University of Tokyo, Japan
Three-dimensional analysis of femtosecond laser ablation in fused silica using dual-view interferometric imaging

10:35 – 10:50 **Simonas Driukas** | FTMC, Lithuania
Optical properties and time resolved THz spectroscopy of ion-implanted GeSn films

10:50 – 11:15 Coffee break

NOVEL MATERIALS 1: SEMICONDUCTORS (Chairperson Koichiro Tanaka)

11:15 – 11:40 **Taiichi Otsuji** (Invited) | ENSEMBLE3 Center of Excellence Ltd., Poland
Dirac plasmons in graphene/topological insulator heterostructures for THz lasers and amplifiers

11:40 – 12:05 **Wojciech Knap** (Invited) | Institute of High Pressure Physics & Warsaw University of Technology, Poland
Magnetoplasmonic Crystals

12:05 – 12:20 **Iryna B. Mikhailikova** | University of Cassino and Southern Lazio, Italy
Graphene-strip-loaded cylindrical Luneburg lens: effects of plasmon resonances on lens performance

This project has received funding from the Research Council of Lithuania (LMTLT), agreement No S-MOR-26-9.

Organizers: CENTER FOR PHYSICAL SCIENCES AND TECHNOLOGY · ChipsC² LT · LMT Lietuvos mokslo taryba

12:20 – 12:35 **Evelina Dudutienė** | FTMC, Lithuania
Rapid thermal annealing of GaAsBi/(Al,Ga)As multiple-quantum-well structures

12:35 – 12:50 **Justinas Jorudas** | FTMC, Lithuania
Modification of β-Ga_2O_3 epilayer properties by direct laser micro-machining

12:50 – 14:00 Lunch break

ORGANICS FOR OPTOELECTRONICS (Chairperson Shang-Hua Yang)

14:00 – 14:25 **Polina Kuzhir** (Invited) | University of Eastern FInland, Finland
Multimodal Sensing with Single-Crystal Diamond Needles

14:25 – 14:50 **Karolis Kazlauskas** (Invited) | Vilnius University, Lithuania
Advanced strategies for efficient solid-state photon upconversion

14:50 – 15:05 **Titas Klepeckas** | FTMC, Lithuania
DIO-Induced Interface Intermixing Limits in Pseudo-Bilayer PM6:Y6 Organic Solar Cell Blends

15:05 – 15:20 **Faustino Wahaia** | Pontifical Catholic University of Chile, Chile
Analysis of Metal-Organic Framework Single Crystals for Possible THz Waves Emission and Sensing

15:20 – 15:35 **Shyantan Dasgupta** | FTMC, Lithuania
Bulk and interfacial ion dynamics in quasi-2D and 3D perovskite LEDs

15:35 – 16:00 Coffee break

SPECIAL SESSION: LUBLIN READINGS (Co-support by Embassy of Poland in Lithuania) (Chairperson Gintaras Valušis)

16:00 – 16:05 **Intro-word** | Polish Embassy

16:05 – 16:30 **Darius Staliūnas** | Vilnius University, Lithuania
Vilnius in 19th century: Memory Politics, Symbolic Geography, and Competitive Claims to the 19th-Century City

16:30 – 16:55 **Agnieszka Siemion** (Invited) | Warsaw University of Technology, Poland
Terahertz Beam Shaping with Diffractive Optics for medical applications with examination of scattering effects

16:55 – 17:20 **Rusnė Ivaškevičiūtė-Povilauskienė** (Invited) | FTMC, Lithuania
Digital Terahertz Holography Approach to Size-Dependent Scattering in Granular Materials

17:20 – 17:45 **Marcin Białek** (Invited) | Institute of High Pressure Physics, Poland
Deep Strong Light-Matter Coupling in Landau-Polaritons

17:45 – 20:00 POSTER SESSION

Thursday (1st October)

FTMC, A101 (Saulėtekio ave. 3)

NOVEL MATERIALS 2: METAMATERIALS (Chairperson Antonio Maffucci)

9:00 – 9:40 **Willie J. Padilla** (Plenary) | Duke University, NC, U.S.A.
Automated Deep Learning Inverse Design of Artificial Electromagnetic Materials

9:40 – 10:05 **Shang-Hua Yang** (Invited) | National Tsing Hua University, Taiwan
Terahertz Optical-Digital Neural Network Imaging

10:05 – 10:20 **Linas Minkevičius** (Invited) | FTMC, Lithuania
Recent Advances in Metasurface-based Optics for THz Imaging Systems

10:20 – 10:35 **Shotaro Kawano** | The University of Tokyo, Japan
Laser micromachining with a large-aperture metalens for a 1064-nm nanosecond laser

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10:35 – 10:50 **Aleksandr Saushin** | University of Eastern FInland, Finland
Control of polarization ellipticity of THz radiation with ultrathin metamaterial

10:50 – 11:15 Coffee break & **GROUP PHOTO**

QUANTUM MATERIALS AND TECHNOLOGIES (Chairperson Polina Kuzhir)

11:15 – 11:40 **Miriam Serena Vitiello** (Invited) | NEST, National Research Council CNR-NANO & Scuola Normale Superiore, Italy
Ultrafast, low-noise, THz graphene photodetectors and applications in quantum science

11:40 – 12:05 **Ronald Ulbricht** (Invited) | Max Planck Institute for Polymer Research, Germany
Characterizing the electronic structure of quantum defects in semiconductors using time-resolved spectroscopy

12:05 – 12:20 **Ifra Bibi** | FTMC, Lithuania
Laser-Induced Room-Temperature Single-Photon Emission from Defect Centers in Hexagonal Boron Nitride

12:20 – 12:35 **Paulius Rindzevičius** | FTMC, Lithuania
Temperature-dependent fluorescence of color centers in diamond structures

12:35 – 12:50 **Rokas Silkinis** | FTMC, Lithuania
Ab initio emission lineshape modeling of color centers in semiconductors

12:50 – 14:00 Lunch break

NOVEL OPTOELECTRONIC SYSTEMS (Chairperson Agnieszka Siemion)

14:00 – 14:25 **Erik Hagen Waller** (Invited) | Fraunhofer Institute for Industrial Mathematics ITWM, Germany
Terahertz systems and components in industry

14:25 – 14:50 **Kuniaki Konishi** (Invited) | The University of Tokyo, Japan
Fabrication of anti-reflective moth-eye structures using ultrashort-pulse laser processing and their application to radio astronomy observations

14:50 – 15:05 **Kazimieras Nomeika** | Light Conversion, Lithuania
Charge Carrier and Spin Diffusion in a Polycrystalline and Single Crystal Lead Halide Perovskite Semiconductor

15:05 – 15:20 **Regimantas Januškevičius** | Ekspla, Lithuania
Narrowband picosecond laser light sources for wide infrared spectral range based on nonlinear light conversion

15:20 – 15:35 **Adrian Cernescu** | Attocube Systems GmbH, Germany
Imaging and Spectroscopy at 10nm Spatial Resolution using s-SNOM

15:35 – 16:00 Coffee break

SPECTROSCOPY AND APPLICATIONS (Chairperson Georgy Fedorov)

16:00 – 16:25 **Heinz-Wilhelm Hübers** (Invited) | DLR Institute of Space Research & Humboldt University Berlin, Germany
High-resolution THz spectroscopy of the mesosphere and lower thermosphere of the Earth

16:25 – 16:50 **Koichiro Tanaka** (Invited) | RIKEN Centre for Advanced Photonics & Kyoto University, Japan
Saturation Spectroscopy of Rotational Transitions Toward the Molecular Clock Application

16:50 – 17:05 **Chia-Ming Mai** | National Tsing Hua University, Taiwan
Dual-mode Terahertz Time-Domain Spectroscopy for Versatile Characterization of Semiconductors

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17:05 – 17:20 **Patricija Ivanauskaitė** | FTMC, Lithuania
Development of a portable optoelectronic system for terahertz gas spectroscopy
17:20 – 17:35 **Surya Revanth Ayyagari** | Vilnius University, Lithuania
Meta-Atom Photonic Sensor for THz Detection of Organic Molecules
18:30 – 21:00 CONFERENCE DINNER

Friday (2nd October)

FTMC, A101 (Saulėtekio ave. 3)

WIRELESS COMMUNICATION SYSTEMS (Co-organizer HERMES)
(Chairperson Heinz-Wilhelm Hübers)
9:00 – 9:40 **Tadao Nagatsuma** (Plenary) | The University of Tokyo, Japan
Terahertz Technologies for Wireless Communications: Achievements and Future Directions
9:40 – 10:05 **Antonio Maffucci** (Invited) | University of Cassino and Southern Lazio, Italy
Towards the integration of THz antennas in novel communication links: the Hermes project
10:05 – 10:20 **Paweł Komorowski** | Military University of Technology, Poland
High-speed terahertz communication in the W and J bands
10:20 – 10:35 **Justina Žemgulytė** | FTMC, Lithuania
Dielectric resonator array rectenna for radio frequency energy harvesting
10:35 – 10:50 **Gedminas Elertas** | Astrolight, Lithuania
Laser Communications in Action: Real-World Deployments from the Arctic to the Baltic Sea
10:50 – 11:15 Coffee break
INTEGRATED PHOTONICS (Co-organizers ChipsC2-LT & HERMES)
(Chairperson Willie J. Padilla)
11:15 – 11:40 **Timo Aalto** (Invited) | Silicon photonics, VTT, Finland
Photonic Integrated Circuits: from Pilot Line Access to Product
11:40 – 12:05 **Georgy Fedorov** (Invited) | University of Eastern FInland, Finland
Terahertz range electrodynamics and possible optoelectronic applications of carbon nanotube films
12:05 – 12:20 **Ubaid ur Rehman** | FTMC, Lithuania
Femtosecond Laser-Written Photonic Integrated Circuits for Quantum Applications
12:20 – 12:35 **Vytautas Janonis** | FTMC, Lithuania
Near-field investigation of GaN surface relief grating coupled plasmon phonon polaritons
12:35 – 12:50 **Armandas Balčytis** | RMIT University & COMBS, Australia
Engineering Thin-Film Lithium Niobate Cavities for On-Chip Frequency-Space Lattices
12:50 – 13:00 BEST STUDENT AWARDS & CONFERENCE CLOSING REMARKS
13:00 – 14:00 Lunch break
14:30 – 17:00 EXCURSION to old town and historical Astronomical Observatory of Vilnius University

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