ICM²TS International Conference on Mobile and Miniaturized THz Systems

Day	Session	Time	Title	Authors	Affiliation of first author
Sunday	**Two-dimensional Nanomaterials for Terahertz Applications** **Chair: Amine El Moutaouakil** **Room: Nakhla 9+10**	10:30 - 10:54	Electrically Tunable Dual-Band THz Metamaterial Absorber With Near-Unity Absorption	**Omnia Samy;** Amine El Moutaouakil	United Arab Emirates University, United Arab Emirates
		10:54 - 11:18	Strong Terahertz Nonlinearity in GaN-Based Two-Dimensional Plasmonic Structures	**Pavlo Sai;** Vadym Korotyeyev; Jeong Woo Han; Dmytro B. But; Maksym Dub; Serhii Kukhtaruk;Stephan Winnerl ;Wojciech Knap; Martin Mittendorff	Institute of High Pressure Physics PAS, Poland
		11:18 - 11:42	Cyclotron Emission From Dirac Electrons in HgCdTe Alloys for Tunable THz Sources	**Dmytro B. But;** Dmitry Yavorskiy; Christophe Consejo; Yuri Ivonyak; Wojciech Knap; Frederic Teppe	CENTERA LAboratory, Institute of High Pressure Physics PAS, Poland & V. Ye. Lashkaryov Institute of Semiconductor Physics NASU, Ukraine
		11:42 - 12:06	Graphene and GaN 2D Plasmonic Nanostructures for THz Filters, Detectors and Amplifiers	**Wojciech Knap**; Pavlo Sai; Vadym Korotyeyev; Grzegorz Cywinski; Maksym Dub; Sergey Rumyantsev	CENTERA - Center for Terahertz Technology Research and Applications, Poland
		12:06 - 12:30	On the Design of Conical-Helix Antenna Using Nanostructure for Terahertz Communication	**Rheyuniarto Sahlendar Asthan**; Zulfi Zulfi; Achmad Munir	Institut Teknologi Sumatera, Indonesia & Institut Teknologi Bandung, Indonesia
Monday	**SAR Processing and its Applications at THz Frequencies** **Chair: Mats Pettersson and Aman Batra** **Room: Nakhla 9+10**	08:00 - 08:24	Utilization of SAR Backprojection in the Analysis of Downscaled Structures in the D-Frequency Band	**Milton Albinson**; Axel Forsbrand; Jakob Helmersson; Philip Primetta; Yevhen Ivanenko	Blekinge Institute of Technology, Sweden
		08:24 - 08:48	Experimental Results of Local Backprojection for Monostatic THz SAR Imaging	**Yevhen Ivanenko**; Aman Batra; Vu Viet Thuy; Mats I. Pettersson; Thomas Kaiser	Blekinge Institute of Technology, Sweden
		08:48 - 09:12	Synthetic Aperture Radar at Terahertz Frequencies for Material Defect Detection	**Vu Viet Thuy**; Yevhen Ivanenko; Mats Pettersson; Vanja Lindberg; Aman Batra; Thomas Kaiser; Mats I. Pettersson	Blekinge Institute of Technology, Sweden
		09:12 - 09:36	THz NLOS Tag Identification through SAR Imaging	**Ali Alhaj Abbas**; Aman Batra; and Thomas Kaiser	University of Duisburg-Essen, Germany
		09:36 - 10:00	Demonstration of Millimeter Wave Radar Sensing in Fire and Smoky Environments	**Aman Batra**; Andreas Prokscha; Thorsten Schultze; Michael Wiemeler; Diana Göhringer; Thomas Kaiser	University of Duisburg-Essen, Germany
	THz Electronic and Photonic Technology **Chair: Andreas Stöhr** **Room: Nakhla 11**	08:00-08:20	Optoelectronic Photomixing Terahertz Receivers Based on Transition Metal-Doped InGaAs	**Milan Deumer**; Simon Nellen; Steffen Breuer; Shahram Keyvaninia; Lars Liebermeister; Martin Schell ; Robert Kohlhaas	Heinrich-Hertz-Institut, HHI, Germany
		08:20-08:40	A SiGe D-Band Frequency Tripler Utilizing a Single-Sideband Mixer	**Stephan Hauptmeier**; Justin Romstadt; Jan Schoepfel; Ahmad Zaben; Klaus Aufinger; Nils Pohl	Ruhr-University Bochum, Germany
		08:40-09:00	Increment in Output Power of Resonant-Tunneling-Diode Terahertz Oscillator With Long-Cavity Resonator	**Hiroki Tanaka**; Safumi Suzuki	Tokyo Tech, Japan
		09:00-09:20	Transmission Characteristics of Dielectric Waveguide in System-On-Chip	**Wenbo Liu**; Peian Li; Jianjun Ma	Beijing Institute of Technology, China
		09:20-09:40	Design and RF Characterization of Manufacturable Flip-Chip Transition Targeting D-Band	**Christian Preuss**; Erika Mikov; Nils Weimann	University of Duisburg-Essen, Germany
		09:40-10:00	Photonic-Integrated Frequency-Domain Terahertz Spectrometer	**Lauri Schwenson**; Florian Walter; Simon Nellen; Lars Liebermeister; Shahram Keyvaninia; Martin Schell; Robert Kohlhaas	Fraunhofer Heinrich Hertz Institute, Germany
	Computing Algorithms and Architectures for THz Systems **Chair: Diana Göhringer** **Room: Nakhla 9+10**	10:30-11:00	Implementation Aspects of RLL Encoding for Zero-Crossing Modulation Based Wideband Communications	**Daniel Swist**; Simon Friedrich; Emil Matus; Meik Dörpinghaus; Gerhard P. Fettweis	TU Dresden, Germany
		11:00-11:30	Reflex-Based Wire-Rate Traffic Steering and Dynamic Service Relocation in Smart Edge Network Interface Cards (SENIC)	**Marco Liess**; Thomas Wild; Andreas Herkersdorf	Technical University of Munich, Germany
		11:30-12:00	Framework for Efficient Exploration of Polar Code Decoders in THz Communication Systems	**Claus Kestel**; Lucas Johannsen; Norbert Wehn	RPTU Kaiserslautern-Landau, Germany
		12:00-12:30	Towards Adaptive RISC-V Based Systems for Non-Terrestrial Sub-THz Communication	**Hendrik Borchert**; Markus Ulbricht; Marko Andjelkovic; Diana Goehringer; Milos Krstic	Leibniz Institute for High Performance Microelectronics (IHP), Germany
	Compact Optoelectronic THz Systems **Chair: Jan Balzer, Sascha Preu, Clara Saraceno** **Room: Nakhla 11**	08:00-08:20	RF-Modulated Frequency Combs From THz Quantum Cascade Ring Lasers	**Karl Unterrainer**; M. Jaidl; Sascha Preu; Juraj Darmo; Dominik Theiner; Aaron M Andrews	Vienna University of Technology, Austria
		08:20-08:40	Compact Mode Locked Laser Diode Driven Terahertz Time Domain Spectroscopy System	**Vladyslav Cherniak**; Tobias Kubiczek; Kevin Kolpatzeck; Jan C Balzer	University of Duisburg Essen, Germany
		08:40-09:00	Photonic Sources for Compact CW-THz Systems	**Niklas Schulz**; Nils Surkamp; Lisa C. Kreuzer; Carsten Brenner; Martin Hofmann	Ruhr University Bochum, Germany
		09:00-09:20	RF Phase Arrays for the Millimeter/Terahertz Range Enabled by Photonics	**Guillermo Carpintero**; Daniel Headland; Asrin Piroutiniya; Kalliopi Spanidou; Luis Gonzalez Guerrero; Muhsin Ali; Christos Tsokos; Hercules Avramopoulos; Zerihun Tegegne; Garrit Schwanke; Milan Deumer; Sebastian Lauck; Lars Liebermeister; Robert Kohlhaas	Universidad Carlos III de Madrid, Spain
		09:20-09:40	THz Path Miniaturization in THz-TDS	**Valentin Meie**r; Marc Nicollerat; Joseph Moerschell; Christoph Ellert	HES-SO, Switzerland

Tuesday	**THz Communications** **Chair: Thomas Kürner** **Room: Nakhla 11**	08:00 - 08:25	Setting the Scene for THz Communications: Recent Progress in Regulation and Standardisation Thomas Kürner	**Thomas Kürner**	Technische Universität Braunschweig, Germany
		08:25 - 09:10	Session Keynote: Towards extreme band communication Mohamed-Slim Alouini	**Mohamed-Slim Alouini**	King Abdullah University of Science and Technology (KAUST), Saudi Arabia
		09:10 - 09:35	Outdoor THz Radio Units Towards Dependable High-Speed Wireless Transmission Tetsuya Kawanishi	**Tetsuya Kawanishi**	Waseda University & National Institute of Information and Communications Technology, Japan
		09:35 - 10:00	How to Build a Multi-Kilometer Terabit-Per-Second Sub-Terahertz Wireless Backhaul	**Duschia M Bodet**; Josep M Jornet	Northeastern University, USA
	Reconfigurable Intelligent Surfaces Technologies and Applications: from GHz to THz **Chair: Aydin Sezgin, Alejandro Jimenez-Saez** **Room: Nakhla 9+10**	10:30 - 10:50	Digital-Coding Reconfigurable Metasurface for THz Anomalous Reflections Based on Liquid Crystal	**Ehsan Farokhipour**; Andreas Rennings; Daniel Erni	University of Duisburg Essen, Germany
		10:50-11:10	URLLC Networks Enabled by STAR-RIS, Rate Splitting, and Multiple Antennas	**Eduard A Jorswieck**; Mohammad Soleymani; Ignacio Santamaria; Jesús Gutiérrez	Technische Universität Braunschweig, Germany
		11:10-11:30	Towards Terahertz Liquid Crystal Reconfigurable Intelligent Surface Based on Defected Delay Lines	**Robin Neuder**; Marc Späth; Alejandro Jiménez-Sáez	Technical University Darmstadt, Germany
		11:30-12:30	Panel Discussion	**Eduard A Jorswieck, Alejandro Jimenez-Saez, Aydin Sezgin**	
	THz Monitoring for Life Sciences **Chair: Daniel Erni, Elsa Kirchner, Mandana Jalali, Fawad Sheikh, Andreas Prokscha** **Room: Nakhla 11**	10:30 - 10:50	Plant Water Content Monitoring Using Miniaturized THz RTD Oscillators and Detectors	**Pooya Alibeigloo**; Christian Preuss; Enes Mutlu; Fawad Sheikh; Yamen Zantah; Andreas Prokscha; Jonas Watermann; Jonathan Abts; Robin Kress; Simone Clochiatti; Thomas Kaiser; Nils Weimann	University of Duisburg-Essen, Germany
		10:50-11:10	Coaxial Cable-Based Near-Field Probing in a Cylindrical Positioning Setup for Plant Stem Monitoring Using Millimeter Waves	**Chen Wu**; Marvin Degen; Benedikt Sievert; Jan Taro Svejda; Daniel Erni; Andreas Rennings	University of Duisburg-Essen, Germany
		11:10-11:30	Terahertz Radar Cross Section Measurement and Digital Twin Simulation for Advanced Insect Monitoring	**Basem Aqlan**; Tobias Kubiczek; Jan C. Balzer	University of Duisburg-Essen, Germany
		11:30-11:50	Towards a Validation System for a THz Graphene-Based Epidermal Electronics System	**Sabisan Santhakumaran**; Elsa A. Kirchner	University of Duisburg-Essen, Germany
		11:50 - 12:10	Terahertz Remote Respiration Rate Monitoring Svenja Nicola Kobel; Yamen Zantah; Andreas Prokscha;	**Christian Wiede**; Gerd vom Bögel; Thomas Kaiser; Karsten Seidl	Fraunhofer Institute for Microelectronic Circuits and Systems (IMS), Germany
		12:10 - 12:30	Terahertz Dosimetry in European Honey Bees	**Fawad Sheikh**; Pieterjan De Boose; Felipe Oliveira Ribas; Dien Lessy; Andreas Prokscha; Aman Batra; Arno Thielens; Thomas Kaiser	University of Duisburg-Essen, Germany
Wednesday	**Beamforming for THz Sensing and Communications** **Chair: Andreas Czylwik, Kevin Kolpatzeck** **Room: Nakhla 9+10**	08:00 - 08:30	Overview Talk	**Andreas Czylwik**	
		08:30 - 09:00	A Compact Fan-Beam Steering Antenna With Omnidirectional Coverage in the 300 GHz Range	**Ryoma Sonoyama;** Masahiko Inami; Yasuaki Monnai	The University of Tokyo, Japan
		09:00 - 09:30	Static Thinning of Linear Antenna Arrays Using a Genetic Algorithm for Hardware Complexity Reduction	**Nabil Alchami;** Akram Najjar; Mohammed El-absi; Thomas Kaiser; and Andreas Czylwik	University of Duisburg-Essen, Germany
		09:30 - 10:00	Ultrabroadband terahertz beamsteering based on optoelectronic phased arrays	**Lars Liebermeister;** Garrit Schwanke; Simon Nellen; Tianwen Qian; Sebastian Lauck; David De Felipe; Moritz Kleinert; Milan Deumer; Norbert Keil; Martin Schell; Robert Kohlhaas	Fraunhofer Heinrich Hertz Institute for Telecommunications, Germany
	THz Identification and Localization (Part 1) **Chair: Ali Alhaj Abbas, Mohammed El-Absi and Maher Khaliel** **Room: Nakhla 11**	08:00 - 08:30	Multilayer Chipless THz Tag for Identification	**Simone Genovesi**; Filippo Costa; Giuliano Manara	University of Pisa, Italy
		08:30 - 09:00	Coded Corner Reflector for Angular Sensing	**Ali Alhaj Abbas**; Thomas Kaiser	University of Duisburg-Essen, Germany
		09:30 - 10:00	Session Keynote Speech: Wireless identification and sensing with chipless RFID tags	**Speaker: Simone Genovesi**	University of Pisa, Italy
	THz in vivo Communications **Chair: Christian Wietfeld and Andreas Prokscha** **Room: Nakhla 9+10**	10:30 - 11:00	The Potentials of Using Terahertz Technology in Revolutionizing the Future of Heart Health Care	**Samar Elmaadawy**; Isaac Chan; Josep M Jornet	Northeastern University, USA
		11:00 - 11:30	Non-Contact Ultrasound Sensing Platform Towards In-Vivo Applications Based on Terahertz Photoacoustic Effect and Laser Vibrometry	**Yunao Zheng**; Yasuaki Monnai	The University of Tokyo, Japan
		11:30 - 12:30	Session Keynote Speech: Exploring Non-Contact Ultrasound Technology Based on Terahertz Photoacoustic Effect	**Yasuaki Monnai**	The University of Tokyo, Japan
	THz Identification and Localization (Part 2) **Chair: Ali Abbas, Mohammed El-Absi and Maher Khaliel** **Room: Nakhla 11**	10:30 - 11:30	Session Keynote Speech: Flexible, Wearable, Disposable Wireless Communication and Sensing Systems Through Additive Manufacturing	**Atif Shamim**	King Abdullah University of Science and Technology (KAUST), Saudi Arabia
		11:30-11:50	Leveraging the Extended Kalman Filter to Minimize Infrastructure in THz RFID Systems for Indoor Sub-Millimeter Tracking Accuracy	**Amani Atiani**; Mohammed El-Absi; Thomas Kaiser	University of Duisburg-Essen, Germany
		11:50-12:10	Motion Modulation Backscattering of Linear Chipless RFID Tags: THz Measurements	**Eunji Choi**; Maher Khaliel Ahmed; Yamen Zantah; Han Vinck; Thomas Kaiser; Ahmed El-Awamry	University of Duisburg-Essen, Germany
		12:10-12:30	First steps towards a chipless, passive THz-based epidermal electronics concept	**Lars Leander Schaberg**; Tobias Kubiczek; Sabisan Santhakumaran; Roman Burkard; Wolfgang Mertin; Franziska Muckel; Gerd Bacher; Anna Lena Schall-Giesecke; D. Neumaier; Jan C. Balzer; Elsa Andrea Kirchner; and Niels Benson	University of Duisburg-Essen, Germany