

# PROGRAM

All times are given in Central European Time (CET)

## Day 1 – Monday, July 5<sup>th</sup>

09.45 – 10.00

Welcome Speech by Thomas Kaiser

### Session 1 – THz Systems Session Chair: Andreas Czulwik

10.00 – 10.30

Performance Comparison of Digital Modulations in the Presence of Gaussian Phase Noise in the Sub-THz Context  
P. Desombre, H. Farès, Y. Louet

10.30 – 11.00

Dynamic Array of Subarrays Architecture Based Hybrid Beamforming in UM-MIMO Systems  
A. Najjar, M. El-Absi, T. Kaiser

11.00 – 11.30

Low-Complexity Zero-Forcing Equalization for MIMO SC-FDMA Terahertz Communications  
M. Shehata, K. Wang, W. Withayachumnankul

11.30 – 12.00

Unexplored Aspects in THz Ray-Tracing  
F. Sheikh, B. Salah, D. Lessy, T. Kaiser

12.00 – 13.30

Lunch Break

### Session 2 – THz Components Session Chair: Daniel Erni

Frequency-Coded Spherical Retroreflector for Wide-Angle Indoor Localization Tag Landmarks  
J. Sánchez-Pastor, A. Jiménez-Sáez, M. Schüßler, R. Jakoby

Design and Fabrication of MEMS Reflectors for THz Reflect-Arrays  
L. Schmitt, X. Liu, A. Czulwik, M. Hoffmann

1.94 THz RTD-gHEMT Oscillator With Graphene Antenna Toward 6G THz Communications  
R. Nobrega, T. R. Raddo, U. R. Duarte, A. Sanches, M. B. Loiola

Frequency-Coded Lens by Photonic Crystal Resonator for mm-Wave Chipless RFID Applications  
A. Abbas, Y. Zantah, K. Solbach T. Kaiser

### Exhibition



TeraView



Afternoon Session – Keynote Talks

13.30 – 14.30

Mobile Material Characterization and Localization by Electromagnetic Sensing (MARIE) - An Overview

Speaker: Thomas Kaiser

14.30 – 14.45

*Coffee Break*

14.45 – 15.45

Recent Progress on a Compact Frequency Domain THz Spectrometer for Airborne Applications

Speaker: Joseph R. Demers

Chair: Thomas Kaiser

15.45 – 16.00

*Coffee Break*

16.00 – 17.00

Enabling Terahertz Communications in Mobile Environments

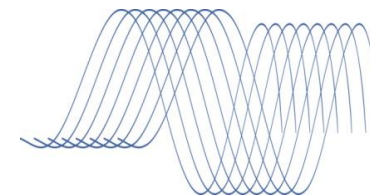
Speaker: Ian F. Akyildiz

Chair: Aydin Sezgin

Save the Date

IWMTS 2022

July 4<sup>th</sup>-6<sup>th</sup> 2022



**Session 3 – THz Electronics**

**Session Chair: Nils Pohl**

**10.00 – 10.30**

Next generation SiGe BiCMOS platforms in Europe: Outcome of the TARANTO ECSEL European Project

P. Chevalier, J. Böck, H. Rücker, A. Gauthier, D. Manger, B. Heinemann

**10.30 – 11.00**

Integrated terahertz Schottky diode receivers

J. Stake, D. Jayasankar, V. Drakinskiy, P. Sobis

**11.00 – 11.30**

A 420GHz Phase-Imaging Receiver in 40nm CMOS Technology

D. Simic, P. Reynaert

**11.30 – 12.00**

600-GHz Electronics

J.-S. Rieh, J. Yun, J. Kim, K. Song, D. Kim, M Cho, H. Son

**12.00 – 13.30**

**Lunch Break**

**Session 4 – THz Circuits and Antennas**

**Session Chair: Nils Weimann**

THz Detectors and Emitters With On-Chip Antenna Aligned on Hyper-Hemispherical Silicon Lenses

R. Kress, C. Preuss, S. Clochiatti, E. Mutlu, W. Prost, N. Weimann

Broadband THz Detection Using InP Triple-Barrier Resonant Tunneling Diode With Integrated Antenna

S. Clochiatti, E. Mutlu, C. Preuss, R. Kress, W. Prost, N. Weimann

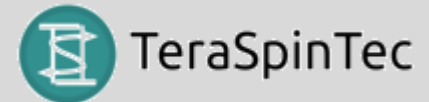
Design of a 1-To-4 Subarray Element for Wireless Subharmonic Injection in the THz Band

M. Zhang, P.-Y. Wang, A. Rennings, S. Clochiatti, W. Prost, N. Weimann, D. Erni

Microwave Intermediate Frequency Equivalent Circuit of GaAs High Electron Mobility Field Effect Transistor Terahertz Detectors

R. Yadav, S. Regensburger, A. Penirschke, S. Preu

**Exhibition**



Afternoon Session – Keynote Talks

13.30 – 14.30

THz SAR – A New Way to Monitor the World

Speaker: Mats I. Pettersson

Chair: Nils Pohl

14.30 – 14.45

Coffee Break

14.45 – 15.45

Wireless Cognition and the Tricorder - Introducing the Sub-Terahertz Future

Speaker: Theodore Rappaport

Chair: Thomas Kaiser

15.45 – 16.00

Coffee Break

16.00 – 17.00

Panel Session – „Will Mobility push THz to Mass Markets?“

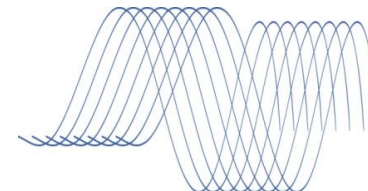
Panelists: Ian F. Akyildiz, Joseph R. Demers, Theodore Rappaport, Mats I. Pettersson

Moderator: Thomas Kaiser

Save the Date

IWMTS 2022

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**Session 5 – THz Research in Europe**

**Session Chair: Andreas Stöhr / Andreas Klein**

**09.00 – 09.30**

Doctoral Training Network in Terahertz Technologies for Imaging, Radar and Communication Applications (TeraApps)  
Edward Wasige

**09.30 – 10.00**

Terahertz Photonics for Communications, Space, Security, Radio-Astronomy, and Material Science (TERAOPTICS)  
Andreas Stöhr

**10.00 – 10.30**

Non-contact millimeter and Terahertz frequency measurement paradigm for instrumentation and sensing applications unlocking metrology-grade results (TeraMeasure)  
Guillermo Carpintero

**10.30 – 10.45**

*Coffee Break*

**10.45 – 11.15**

THz end-to-end wireless systems supporting ultra high data Rate applications (ThoR)  
Thomas Kürner

**11.15 – 11.45**

THz technology for ultra-broadband and ultra-wideband operation of BH and FH links in systems with SDN management of network and radio resources (TERAWAY)  
Christos Tsokos

**11.45 – 12.15**

Terahertz Analogue-to-Digital Conversion Using Photonic Chipscale Soliton Frequency Combs and Massively Parallel Spectrally Sliced Detection (TeraSlice)  
Christian Koos

**Session 6 – THz SAR**

**Session Chair: Mats I. Pettersson**

Interpolation Methods for SAR Backprojection at THz Frequencies  
Y.Ivanenko, V. Viet Thuy, M. I. Pettersson

Terahertz Three-Dimensional SAR Imaging Using Time- and Frequency-Domain Algorithms  
V. Viet Thuy, M. I. Pettersson

Sub-mm Resolution 3D SAR Imaging at 1.5 THz  
A. Batra, M. Wiemeler, D. Goehringer, T. Kaiser

*Coffee Break*

FPGA-Based Acceleration of THz SAR Imaging  
A. Batra, A. Kamaleldin, Z. Lee, M. Wiemeler, D. Goehringer, T. Kaiser

Efficient Frequency Domain Sampling Schemes for THz SAR Systems  
J. Schorlemer, K. Kolpatzeck, J. C. Balzer, A. Czulwik, I. Rolfes, J. Barowski

**Exhibition**

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