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Full technical program

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ABB Corporate Research, Switzerland

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¹Department of Physics and Research Center OPTIMAS, University of Kaiserslautern, Germany; ²Fraunhofer Institute for Physical Measurement Techniques IPM, Germany; ³Department of Communications Engineering, University of Kaiserslautern, Germany

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¹Helwan University, Egypt; ²Université de Montréal, Canada; ³University of Dammam, Saudi Arabia; ⁴Queen's University, Canada; ⁵INRS-EMT, Canada; ⁶Polytechnique Montréal, Canada

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¹Beijing Institute of Radio Metrology and Measurement, China; ²Beijing Institute of Radio Measurement, China

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Arya Fallahi¹; Kaveh Khaliji²; Tony Low²
¹DESY-Center for Free Electron Laser Science, Germany; ²University of Minnesota, Germany

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¹DESY-Center for Free Electron Laser Science, Germany; ²Massachusetts Institute of Technology, United States

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Dinh Nguyen¹; Katharina Weber²; Wegmann Volker²; Yves Hernandez³
¹Multitel ASBL, Belgium; ²Fraunhofer-Institut für Produktionstechnik und Automatisierung IPA, Germany; ³ Multitel ASBL, Belgium

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¹Munich University of Applied Sciences, Germany; ²TOPTICA Photonics AG, Germany; ³Papiertechnische Stiftung, Germany

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¹Institute of Physics, Academy of Sciences of the Czech Republic, Czech Republic; ²Helmholtz-Zentrum für Materialien und Energie GmbH, Germany

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¹University of Oxford, United Kingdom; ²Ecole Polytechnique Federale de Lausanne, Switzerland; ³University of Cambridge, United Kingdom

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¹University of Leeds, United Kingdom; ²UCL, United Kingdom

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¹Yokohama National University, Japan; ²Brigham Young University, United States

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Jacques Gardelle¹; Patrick Modin¹; Hans P. Bluem²; Robert H. Jackson²; Alan M. M. Todd²; John T. Donohue³

¹CEA/CESTA, France; ²AES, United States; ³CENBG, France

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⁴ Xylophone Optics Ltd, Ireland; ⁵ University of California, Los Angeles, United States			
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¹ Nagoya University, Japan; ² RIKEN, Japan			
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Mode Xuemin Wang

No show, not included in digest.

Research Center of Laser Fusion, China Academy of Engineering Physics, China

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Martin Hempel¹; Benjamin Röben¹; Lutz Schrottke¹; Heinz-Wilhelm Hübers²; Holger Grahn¹

¹Paul-Drude-Institut, Germany; ²German Aerospace Center (DLR), Institut of Optical Sensor Systems, Germany

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Monica De Seta¹; Diego Sabbagh¹; Luciana Di Gaspare¹; Johannes Schmidt²; Stephan Winnerl³; Manfred Helm²; Michele Virgilio⁴; Michele Ortolani⁵

¹Dipartimento di Scienze Università di Roma Tre, Italy; ²Helmutz-Zentrum Dresden-Rossendorf and Institut für Angewandte Physik Dresden, Germany; ³Helmutz-Zentrum Dresden-Rossendorf Dresden, Germany; ⁴Dipartimento di Fisica "E. Fermi" Università di Pisa, Italy; ⁵Dipartimento di Fisica, Università di Roma "La Sapienza", Italy

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Junqi Liu¹; Yuanyuan Li²; Fengqi Liu²; Jinchuan Zhang²; Shenqiang Zhai²; Lijun Wang²; Shuman Liu²

¹Institute of Semiconductors, Chinese Academy of Sciences, China; ²Institute of Semiconductors, China

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German Aerospace Center (DLR), Germany

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¹University of Leeds, United Kingdom; ²STFC RAL Space, United Kingdom

Tuesday, 27. September 2016

08:30 - 10:00		Tuesday Plenary Session Session Chair: Xi-Cheng Zhang, University of Rochester, USA	Plenary Auditorium 10/11/12
08:30	Successful Precision 300-THz Laser Interferometry For Gravitational-wave Detection 287	<u>David Shoemaker</u> Kavli Institute, MIT, United States	T1.1
09:15	Metamaterials For THz Quantum Detection 290	<u>Carlo Sirtori</u> Université Paris Diderot, France	T1.2
11:00 - 12:30		Ultrafast Measurements II (T2A) Session Chair: Ajay Nahata, University of Utah, USA	Room 20
11:00	Ultrafast THz-STM Of Si(111)-7x7 With Atomic Resolution (Keynote Talk)	<u>Vedran Jelic</u> ¹ ; Krzysztof Iwaszczuk ² ; Peter Nguyen ¹ ; Christopher Rathje ³ ; Graham Hornig ¹ ; Hailie Sharum ¹ ; James Hoffman ¹ ; Mark Freeman ¹ ; Frank Hegmann ¹ ¹ University of Alberta, Canada; ² Technical University of Denmark, Denmark; ³ University of Göttingen, Germany	T2A.1 Authors chose not to publish
11:30	THz Nano-Spectroscopy With 25 nm Spatial And 10 fs Time Resolution 291	<u>Miriam Boehmler</u> ; Andreas Huber; Max Eisele neaspec GmbH, Germany	T2A.2
11:45	Electron Pulse Reshaping By THz Streaking At Metal Nanotips 293	<u>Lara Wimmer</u> ¹ ; Georg Herink ² ; Oliver Karnbach ¹ ; Claus Ropers ¹ ¹ Georg-August University of Göttingen, Germany; ² Georg-August University Göttingen, Germany	T2A.3
12:00	Germanium Plasmonic Nanoantennas For Third-Harmonic Generation In The Mid Infrared 295	<u>Marco P. Fischer</u> ¹ ; Aaron Riede ¹ ; Alexander Grupp ¹ ; Kevin Gallacher ² ; Jacopo Frigerio ³ ; Michele Ortolani ⁴ ; Douglas J. Paul ² ; Giovanni Isella ³ ; Alfred Leitenstorfer ¹ ; Paolo Biagioni ⁵ ; Daniele Brida ¹ ¹ Department of Physics and Center for Applied Photonics, University of Konstanz, Germany; ² School of Engineering, University of Glasgow, United Kingdom; ³ L-NESS, Dipartimento di Fisica del Politecnico di Milano, Italy; ⁴ Department of Physics, Sapienza University of Rome, Italy; ⁵ Dipartimento di Fisica, Politecnico di Milano, Italy	T2A.4
12:15	Charge Carrier Dynamics In Cu₂ZnSn(S/Se)₄ Thin Film Solar Cells Measured By Time Resolved Terahertz Spectroscopy 297	<u>Hannes Hempel</u> ¹ ; Thomas Unold ¹ ; Rainer Eichberger ¹ ; Sönke Müller ² ; Gilles Dennler ³ ¹ Helmholtz-Zentrum Berlin für Materialien und Energie, Germany; ² Department Structure and Dynamics of Energy Materials,	T2A.5

Helmholtz-Zentrum Berlin für Materialien und, Germany; ³IMRA Europe SAS, France

11:00 - 12:30		Spectroscopy and Material Properties III (T2B)	Auditorium 10
		Session Chair: Withawat Withayachumnankul, University of Adelaide, Australia	
11:00	Multi-Extreme THz ESR: Recent Achievements In Kobe 299		T2B.1
	Hitoshi Ohta ¹ ; Susumu Okubo ² ; Eiji Ohmichi ² ; Takahiro Sakurai ² ; Hideyuki Takahashi ² ; Shigeo Hara ² ¹ Kobe University, Molecular Photoscience Research Center, Japan; ² Kobe University, Japan		
11:15	THz Spectroscopic Investigations Of Magnetodielectric Coupling In Sr_{0.55}Ba_{0.45} MnO₃ Ceramics 301		T2B.2
	Filip Kadlec ¹ ; Veronica Goian ¹ ; Christelle Kadlec ¹ ; Bogdan Dabrowski ² ; Dmitrii Nuzhnyy ¹ ; Martin Kempa ¹ ; Viktor Bovtun ¹ ; Maxim Savinov ¹ ; Jiří Hejtmánek ¹ ; Jan Prokleska ³ ; Stanislav Kamba ¹ ¹ Institute of Physics, Czech Academy of Sciences, Czech Republic; ² Northern Illinois University, DeKalb, United States; ³ Faculty of Mathematics and Physics, Charles University, Czech Republic		
11:30	Possible Light-induced Superconductivity In Metallic K₃C₆₀ 303		T2B.3
	Alice Cantaluppi ¹ ; Matteo Mitrano ¹ ; Daniele Nicoletti ¹ ; Stefan Kaiser ¹ ; Andrea Perucchi ² ; Stefano Lupi ³ ; Paola Di Pietro ² ; Daniele Pontiroli ⁴ ; Mauro Riccò ⁴ ; Stephen Clark ⁵ ; Dieter Jaksch ⁶ ; Andrea Cavalleri ¹ ¹ Max Planck Institute for the Structure and Dynamics of Matter, Germany; ² INSTM UdR Trieste-ST and Elettra - Sincrotrone Trieste S.C.p.A., Italy; ³ CNR-IOM and Dipartimento di Fisica, Università di Roma, Italy; ⁴ Dipartimento di Fisica e Scienze della Terra, Università degli Studi di Parma, Italy; ⁵ Department of Physics, University of Bath, United Kingdom; ⁶ Department of Physics, Oxford University, Clarendon Laboratory, United Kingdom		
12:00	Synchrotron Radiation For Probing The Quantum Ground State In Tb₂Ti₂O₇ 306		T2B.4
	Evan Constable ¹ ; S. De Brion ¹ ; V. Simonet ¹ ; J. Robert ¹ ; R. Ballou ¹ ; S. Petit ² ; C. Decorse ³ ; J. -B. Brubach ⁴ ; P. Roy ⁴ ¹ Institut Néel, France; ² Laboratoire Léon Brillouin, France; ³ Université Paris-Sud, France; ⁴ SOLEIL synchrotron, France		
12:15	Terahertz Dynamics Of Spin Resonance Splitting In TmFeO₃ Single Crystal 308		T2B.5
	Kailin Zhang ¹ ; Xiumei Liu ¹ ; Kai Xu ¹ ; Bo Li ² ; Shixun Cao ¹ ; Zuanming Jin ¹ ; Guohong Ma ¹ ¹ Shanghai University, China; ² East China Normal University, China		
11:00 - 12:30		Metamaterial Structures and Applications I (T2C)	Auditorium 12
		Session Chair: Willie Padilla, Duke University, USA	
11:00	Terahertz Quantum Hall Effect In Spin-split 2D Heavy-hole Gases 310		T2C.1
	Michele Failla ¹ ; Janine Keller ² ; Giacomo Scalari ² ; Jérôme Faist ² ; Maksym Myronov ¹ ; David Leadley ¹ ; James Lloyd-Hughes ¹ ¹ University of Warwick, United Kingdom; ² ETH Zurich, Switzerland		
11:15	Resonance Tuning With A System Of Coupled Dipoles 311		T2C.2
	Moritz Wenclawiak; Karl Unterrainer; Juraj Darmo		

Technische Universität Wien - Institut für Photonik, Austria

11:30	Ultra-strong Coupling With Spin-split Heavy-hole Cyclotron Resonances In Strained Ge Quantum Wells 313	T2C.3
	<u>Janine Keller</u> ¹ ; Giacomo Scalari ¹ ; Gian Lorenzo Paravicini-Bagliani ¹ ; Curdin Maissen ¹ ; Johannes Haase ² ; Michele Failla ³ ; Maksym Myronov ³ ; David R. Leadley ³ ; James Lloyd-Hughes ³ ; Jerome Faist ¹ ¹ ETH Zürich, Switzerland; ² PSI, Switzerland; ³ University of Warwick, United Kingdom	
11:45	Time-domain Electric Field Enhancement On Micrometer Scale In Coupled Split Ring Resonator Upon Terahertz Radiation 315	T2C.4
	<u>Simon Lehnkov Lange</u> ¹ ; Krzysztof Iwaszczuk ¹ ; Matthias Hoffmann ² ; Jes Broeng ¹ ; Peter Uhd Jepsen ¹ ¹ Technical University of Denmark, Denmark; ² Stanford Linear Accelerator Center, United States	
12:00	Gate Tunable Magneto-Plasmon Ultrastrongly Coupled To LC Cavity (Keynote Talk) 317	T2C.5
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11:00 - 12:30		Devices, Components, and Systems IV (T2D)	Auditorium 11
		Session Chair: Ci-Ling Pan, National Tsing Hua University, Taiwan	
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	<u>Rajind Mendis</u> ¹ ; Masaya Nagai ² ; Yiqiu Wang ³ ; Nicholas Karl ¹ ; Daniel Mittleman ¹ ¹ Brown University, United States; ² Osaka University, Japan; ³ Rice University, United States		
11:15	Broadband Terahertz Polarization Rotator Based On A twisted Parallel Plate Waveguide 322		T2D.2
	<u>Thea Bjørk Kristensen</u> ; Krzysztof Iwaszczuk; Peter Uhd Jepsen Technical University of Denmark, Denmark		
11:30	Mode Selectivity Of Extraordinary Optical Transmission Inside A Terahertz Parallel-Plate Waveguide 324		T2D.3
	<u>Kimberly Reichel</u> ¹ ; Peter Lu ² ; Rajind Medis ¹ ; Daniel Mittleman ¹ ¹ Brown University, United States; ² Harvard University, United States		
11:45	Efficient Terahertz Reflectarray Based On Dielectric Resonator Antennas N/A		T2D.4
	<u>Daniel Headland</u> ¹ ; Eduardo Carrasco ² ; Shruti Nirantar ³ ; Philipp Gutruf ³ ; James Schwarz ³ ; Derek Abbott ¹ ; Madhu Bhaskaran ³ ; Sharath Sriram ³ ; Julien Perruisseau-Carrier ⁴ ; Christophe Fumeaux ¹ ; Withawat Withayachumnankul ¹ ¹ The University of Adelaide, Australia; ² Foundation for Research on Information Technologies in Society, Switzerland; ³ RMIT University, Australia; ⁴ École polytechnique fédérale de Lausanne, Switzerland		
12:00	Silicon Micromachined Terahertz Spectrometer Instruments 328		T2D.5
	<u>Goutam Chattopadhyay</u> ; Theodore Reck; Cecile Jung-Kubiak; David Ganzalez-Ovejero; Adrian Tang; Choonsup Lee; Maria Alonso-DelPino NASA-Jet Propulsion Laboratory, California Institute of Technology, United States		

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Oleksandr Rybalko; Vitaliy Zhurbenko; Jan Henrik Ardenkjær-Larsen
DTU Elektro, Denmark

11:00 - 12:30	Laser-Driven THz and mid-IR Sources II (T2E) Session Chair: Alexander Shkurinov, Moscow State University, Russia	Room 19
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Zhan Jin¹; Hongbin Zhuo²; Tomohiro Nakazawa³; Junghun Shin³; Satoshi Wakamatsu³; Noboru Yugami⁴; Tomonao Hosokai³; Mingyang Yu⁵; Zhengming Sheng⁶; Ryosuke Kodama³
¹Photon Pioneers Center, Osaka University, Japan; ²National University of Defense Technology, China; ³Osaka University, Japan; ⁴Utsunomiya University, Japan; ⁵Zhejiang University, China; ⁶Shanghai Jiao Tong University, China

11:30 **Pulse Sequences For High-Energy Terahertz Generation** 334 **T2E.2**
Koustuban Ravi¹; Frederike Ahr²; Giovanni Cirmi²; Michael Hemmer²; Fabian Reichert²; Damian Schimpf²; Huseyin Cankaya²; Oliver Mücke²; Luis Zapata²; Nicholas Matlis²; Franz X. Kärtner²
¹Massachusetts Institute of Technology, Center for Free Electron Laser Science, Germany; ²Center for free electron laser science, Germany

11:45 **High-Power Terahertz Pulse Generation Using Table-Top Laser Driven Ion Accelerators** 336 **T2E.3**
Amrutha Gopal¹; Abel Woldegeorgis²; Sven Herzer²
¹Institute of Optics and Quantum Electronics - Friedrich Schiller University, Germany; ²Friedrich-Schiller University, Jena, Germany

12:00 **Terahertz Emission Mechanism And Laser Excitation Position Dependence Of Nano-Grating Electrode Photomixers** 338 **T2E.4**
Reshma Anamari Mohandas¹; Joshua R. Freeman¹; Mark C. Rosamond¹; Lalitha Ponnampalam²; Alwyn J. Seeds²; Paul J. Cannard³; David G. Moodie³; Michael J. Robertson³; A. Giles Davies¹; Edmund H. Linfield¹; Paul Dean¹
¹University of Leeds, United Kingdom; ²University College London, United Kingdom; ³CIP Technologies, United Kingdom

12:15 **Photonics-based 1-THz Signal Generation And Its Evaluation On Phase Noise Characteristics** 340 **T2E.5**
Atsushi Kanno; Norihiko Sekine; Akifumi Kasamatsu; Naokatsu Yamamoto
National Institute of Information and Communications Technology, Japan

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Corinna Ludovica Koch Dandolo¹; Johanne Bornemann Mogensen²; Mads Christian Christensen²; Peter Uhd Jepsen³
¹Technical University of Denmark, Switzerland; ²National museum of Denmark, Denmark; ³Technical University of Denmark,

	Denmark	
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15:15	Comparative Study Of Mid-20th C. Art Using THz And X-ray Imaging 350 <u>J. Bianca Jackson</u> ¹ ; Marcello Melis ² ; Junliang Dong ³ ; David Giovannacci ⁴ ; Gillian Walker ⁵ ; Alexandre Locquet ³ ; John Bowen ⁵ ; David S. Citrin ³ ¹ University of Reading, United States; ² Profilocolore srl, Italy; ³ Georgia Institute of Technology, United States; ⁴ Laboratoire de Recherche des Monuments Historiques, France; ⁵ University of Reading, United Kingdom	T3A.5

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Guiney³; Colin Humphreys³

¹Laser Quantum GmbH, Germany; ²School of Physics and Astronomy and the Photon Science Institute, The University of Manchester, United Kingdom; ³Department of Materials Science and Metallurgy, University of Cambridge, United Kingdom

15:00 **Mid-infrared Spectroscopy Of Sulphur And Selenium Donors In Silicon For Quantum Optics** 360 **T3B.5**

Ryan Stock¹; William Royle¹; Chris Hodges¹; Yuri Astrov²; Valentina Shuman²; Leonid Portsel²; Anatoly Lodygin²; Stephen Lynch¹

¹Cardiff University, United Kingdom; ²Ioffe Physico-Technical Institute, Russian Federation

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Leonetta Baldassarre¹; Emilie Sakat²; Monica Bollani³; Antonio Samarelli⁴; Kevin Gallacher⁴; Jacopo Frigerio⁵; Giovanni Pellegrini²; Valeria Giliberti⁶; Andrea Ballabio⁵; Marco P. Fischer⁷; Daniele Brida⁷; Giovanni Isella⁵; Douglas Paul⁴; Michele Ortolani¹; Paolo Biagioni²

¹Sapienza University of Rome, Italy; ²Politecnico di Milano, Italy; ³IFN-CNR, Italy; ⁴University of Glasgow, United Kingdom; ⁵LNESS, Politecnico di Milano, Italy; ⁶Istituto Italiano di Tecnologia, Italy; ⁷University of Konstanz, Germany

14:00 - 15:30 **Sources, Detectors, and Receivers I (T3C)** **Auditorium 12**
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14:00 **Room-Temperature Resonant-Tunneling-Diode Terahertz Oscillators (Keynote Talk)** 364 **T3C.1**

Masahiro Asada

Tokyo Institute of Technology, Japan

14:30 **An Ultra-compact 16-pixel Local Oscillator At 1.9 THz** 367 **T3C.2**

Jose Siles; Robert Lin; Peter Bruneau; Choonsup Lee; Imran Mehdi

NASA Jet Propulsion Laboratory, United States

14:45 **V-Band MMIC LNAs And Mixers For Observing The Early Universe** 369 **T3C.3**

Lorene Samoska¹; Mikko Varonen²; Pekka Kangaslahti¹; Andy Fung¹; Rohit Gawande¹; Mary Soria¹; Richard Lai³; Stephen Sarkozy³

¹Jet Propulsion Lab, United States; ²Aalto University, Finland; ³Northrop Grumman Corporation, United States

15:00 **Far-Infrared Room-Temperature Focal Plane Modules For Radiation Budget Instrument** 371 **T3C.4**

Giacomo Mariani; Matthew Kenyon; John Pearson; Warren Holmes

NASA Jet Propulsion Laboratory, United States

15:15 **Receiver Front-End Development Activities For MetOp-SG** N/A **T3C.5**

Simon Rea¹; Brian Moyna¹; Brian Ellison¹; Bertrand Thomas²; Michael Brandt²; Martin Philipp²

¹RAL Space, United Kingdom; ²Radiometer Physics GmbH, Germany

14:00 - 15:30 **Ultrafast Measurements III (T3D)** **Room 20**
Session Chair: Frank Hegmann, University of Alberta, Canada

14:00	Terahertz-induced Anomalous Velocity Of Spin-polarized Carriers 373	T3D.1
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	<u>Janne Savolainen</u> Ruhr-University Bochum, Germany	
14:30	Extracting The Key Electrical Properties Of Semiconductors Using Optical Pump Terahertz Probe Spectroscopy (Keynote Talk) 376	T3D.3
	<u>Michael Johnston</u> University of Oxford, United Kingdom	
15:00	THz Induced Ultrafast Modulation Of NIR Refractive Index Of Silicon 378	T3D.4
	<u>Abebe Tilahun Tarekegne</u> ¹ ; Hideki Hirori ² ; Krzysztof Iwaszczuk ¹ ; Koichiro Tanaka ³ ; Peter Uhd Jepsen ¹ ¹ DTU Fotonik, Technical University of Denmark, Denmark; ² Institute for Integrated Cell-Material Sciences, Kyoto University, Japan; ³ Department of Physics, Graduate School of Science, Kyoto University, Japan	
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14:00 - 15:30		Laser-Driven THz and mid-IR Sources III (T3E)	Room 19
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<u>Morten Bache</u> ¹ ; Binbin Zhou ¹ ; Satoshi Ashihara ² ; Ashley Stingel ³ ; Heather Vanselous ³ ; Poul B. Petersen ³ ¹ Technical University of Denmark, Denmark; ² University of Tokyo, Japan; ³ Cornell University, United States			
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<u>Chao Yan</u> ; Yuye Wang; Degang Xu; Pengxiang Liu; Jia Shi; Dexian Yan; Hongxiang Liu; Yixin He; Meitong Nie; Longhuang Tang; Kai Zhong; Wei Shi; Jianquan Yao			

Tianjin university, China

15:00 **Near-field Terahertz Emission By Transient Photocurrents: Monte-Carlo Simulation And Comparison To Experiment (Keynote Talk)** 390 **T3E.5**
Sofia Corzo-Garcia¹; Arturo Hernandez-Serrano¹; [Enrique Castro-Camus](#)¹; Oleg Mitrofanov²
¹Centro de Investigaciones en Optica A.C., Mexico; ²UCL, United Kingdom

16:00 - 17:30	Imaging, inspection and remote sensing II (T4A) Session Chair: J. Bianca Jackson, University of Reading, United Kingdom	Auditorium 11
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16:00 **A Fully-Integrated Terahertz Near-Field Sensor For Super-Resolution Imaging In SiGe BiCMOS** 392 **T4A.1**
[Philipp Hillger](#); Janusz Grzyb; Ullrich R. Pfeiffer
University of Wuppertal, Germany

16:15 **A CMOS 0.15-um In-Pixel Noise Reduction Technique For Readout Of Antenna-Coupled FET-based THz Detectors** 394 **T4A.2**
[Moustafa Khatib](#); Matteo Perenzoni; David Stoppa
FBK, Italy

16:30 **Terahertz Imaging With Hz-Level Frame Rates Based On Self-Mixing In A Quantum-Cascade Laser** 396 **T4A.3**
[Martin Wienold](#); Till Hagelschuer; Nick Rothbart; Heinz-Wilhelm Hübers
German Aerospace Center (DLR), Germany

16:45 **Laser Self-Detection Operation Of A Mid-IR Near-Field Microscope** 398 **T4A.4**
[Fritz Keilmann](#)¹; Clemens Liewald¹; Gaetano Scamarcio²; L. Columbo²; M. Brambilla²
¹Ludwig-Maximilians-Universität München, Germany; ²Universita Bari, Italy

17:00 **A General Purpose, Ultra-High Sensitivity Terahertz Camera Based On Kinetic Inductance Detectors For Commercial/Industrial Applications** 399 **T4A.5**
[Sam Rowe](#)¹; Simon Doyle¹; Chris Dunscombe¹; Pete Hargrave¹; Enzo Pascale¹; Ken Wood²
¹Cardiff University, United Kingdom; ²QMC Instruments Ltd., United Kingdom

17:15 **Understanding Mask Switching For THz Compressive Imaging** 400 **T4A.6**
[Sven Augustin](#); Heinz-Wilhelm Hübers
Humboldt Universität zu Berlin/German Aerospace Center, Germany

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[Mark Lundeborg](#)¹; Frank Koppens²
¹ICFO-The Institute of Photonic Sciences, Spain; ²ICFO - The Institute of Photonic Sciences, Spain

16:30	Optical Modulation Of THz Plasmonic Resonances Using Perovskites 404	T4B.2
	<u>Ashish Chanana</u> ; Chuang Zhang; Yaxin Zhai; Valy Vardeny; Ajay Nahata University of Utah, United States	
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¹Tohoku University, Japan; ²NTT Electronics Techno, Japan; ³NTT Electronics, Japan; ⁴RIKEN Center for Advanced Photonics, RIKEN, Japan

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¹Tomsk State University, Russian Federation; ²Boreskov Institute of Catalysis, Russian Federation

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¹Hosei University, Japan; ²National Institute of Information and Communication Technology, Japan

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¹School of Electronic Science and Engineering, National University of Defense Technology, China; ²Microsystem and Terahertz Research Center, China Academy of Engineering Physics, China

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¹Osaka University, Japan; ²ARKRAY, inc., Japan; ³Think-Lands Co., Ltd., Japan

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Yujiao Zhao¹; Guang Tian²; Xianjin Deng¹; Binbin Cheng¹; Jie Liu¹

¹China Academy of Engineering Physics, China; ²BOCOM Smart Network Technologies Inc, China

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¹Tianjin University, China; ²Third Military Medical University, China

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¹Middle East Technical University, Turkey; ²Bilkent University, Turkey

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¹Technical University of Delft, Netherlands; ²VTT Technical Research Center of Finland, Finland

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China Academy of Engineering Physics, China

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Shuchang Liu¹; Oleg Mitrofanov²; Ajay Nahata¹

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¹University of Utah, United States; ²UCL, United Kingdom

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¹Research Center for Development of Far-Infrared Region, University of Fukui, Japan; ²National Institute for Materials Science, Japan

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ITMO University, Russian Federation

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Jan Hieronymus¹; Sven Augustin²; Heinz-Wilhelm Hübers²

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¹Fraunhofer Institute for Physical Measurements Techniques IPM, Germany; ²Becker Photonik GmbH, Germany; ³University Siegen, Germany; ⁴Synview GmbH, Germany; ⁵Kaiserslautern University of technology, Germany

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University College London, United Kingdom

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Soner Balci¹; Alexander Maleski¹; Matheus Mello Nascimento²; Elizabeth Philip¹; Patrick Kung¹; Seongsin Margaret Kim¹

¹University of Alabama, United States; ²The University of Brasília, Brazil

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¹University of Montpellier & CNRS, France; ²Warsaw University of Technology, Poland; ³Institute of High Pressure Physics of Polish Academy of Sciences, Poland

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Zentrum Dresden Rossendorf, Germany; ³CRANN, AMBER and School of Physics, Trinity College Dublin, Dublin 2, Ireland, Ireland

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China Academy of Engineering Physics, China

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National Key Laboratory of Science and Technology on Space Microwave, China

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¹Nankai University, China; ²Tianjin University, China

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¹Fukui Univ. of Tech., Japan; ²Research Center for Development of Far-Infrared Region, University of Fukui, Japan; ³Faculty of Education and Regional Studies, University of Fukui, Japan; ⁴Setsunan University, Japan; ⁵Institute of Laser Engineering, Osaka University, Japan

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¹Tianjin university, China; ²University of Arizona, United States

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¹Dukhov Research Institute of Automatics (VNIIA), Russian Federation; ²Lebedev Physical Institute, RAS, Russian Federation

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08:30 - 10:00		Wednesday Plenary Session Session Chair: Peter Uhd Jepsen, Technical University of Denmark	Plenary Auditorium 10/11/12
08:30	Electron Dynamics In Solar Energy Converting Materials 607 Villy Sundström Lund University, Sweden		W1.1
09:15	The Times They Are A'Changin... 608 Søren Rud Keiding Aarhus University, Denmark		W1.2
11:00 - 12:30		Imaging, inspection and remote sensing III (W2A) Session Chair: René Beigang, University of Kaiserslautern, Germany	Room 20
11:00	24x24 Pixel Focal Plane Array For THz Imaging Applications 609 Dan Corcos ¹ ; Sergey Pivnik ¹ ; Ofer Markish ¹ ; Thomas Morf ² ; Ute Drechsler ² ; André Bischof ³ ; Danny Elad ¹ ¹ IBM Research - Haifa, Israel; ² IBM Research - Zurich, Switzerland; ³ CSEM, Switzerland		W2A.1
11:15	A New 3D THz Scanner For The THz-ARTE Project 611 Andrea Doria ¹ ; Gian Piero Gallerano ¹ ; Emilio Giovenale ¹ ; Marcello Picollo ² ; Kaori Fukunaga ³ ¹ ENEA, Italy; ² IFAC-CNR, Italy; ³ NICT, Japan		W2A.2
11:30	Visualization Of Terahertz Radiation On Silicon-based CCD And CMOS Sensor At High Resolution (Keynote Talk) 613 Christoph P. Hauri ¹ ; Mostafa Shalaby ¹ ; Carlo Vicario ² ¹ Paul Scherrer Institute, Switzerland; ² PSI, Switzerland		W2A.3
12:00	Towards Passive Imaging With CMOS THz Cameras 614 Stefan Malz ; Ritesh Jain ; Ullrich R. Pfeiffer University of Wuppertal, Germany		W2A.4
12:15	Uncooled Terahertz Video Micro-bolometer Camera: Toolbox To Optimize The Sensitivity By Tuning Antennas And Cavity 616 Jerome Meilhan ; Jonathan Oden ; Jean-Louis Ouvrier-Buffet ; Antoine Hamelin ; Baptiste Delplanque ; Francois Simoens CEA-LETI, France		W2A.5
11:00 - 12:30		Spectroscopy and Material Properties VI (W2B) Session Chair: Filip Kadlec, Academy of Science of the Czech Republic, Czech Republic	Auditorium 10
11:00	Ultrabroadband THz Time-domain Spectroscopy Of Biomolecular Crystals 618		W2B.1

Korbinian J. Kaltenecker¹; Sebastian Engelbrecht¹; Krzysztof Iwaszczuk²; Bernd M. Fischer¹; Peter Uhd Jepsen²

¹French-German Research Institute of Saint-Louis, France; ²Department of Photonics Engineering, Technical University of Denmark, Denmark

11:15 **The Use Of Dye Photosensibilization To Control Light Induced Ultrafast Phase Transition Of VO₂ Films For Terahertz Applications** 620 **W2B.2**

Mikhail Esaulkov¹; Maxim Zhanavskiy²; Alexander Shkurinov³; Vladimir Zaitsev³; Oleg Novodvorsky¹; Lyubov Parshina¹; Vladimir Mikhalevsky¹; Igor Chernykh²; Petr Solyankin³

¹Institute on Laser and Information Technologies of the RAS (ILIT RAS), Russian Federation; ²National research center Kurchatov Institute, Russian Federation; ³Faculty of Physics, Moscow State University, Russian Federation

11:30 **Calculating The Complex Permittivity Of Powdered Crystalline Material At Infrared And Terahertz Frequencies** 622 **W2B.3**

Andrew Burnett¹; John Kendrick²

¹University of Leeds, United Kingdom; ²University of Bradford, United Kingdom

11:45 **The Influence Of Intermolecular Forces On The Terahertz Response Of Amorphous Materials** 624 **W2B.4**

Michael Ruggiero¹; Juraj Sibik²; J. Axel Zeitler¹

¹University of Cambridge, United Kingdom; ²Roche, Switzerland

12:00 **Correlation Between Salt-induced Change In Lipid Hydration Water And Inter-space Of Multi-lamellar Vesicles** 626 **W2B.5**

Da-Hye Choi¹; Heyjin Son¹; Jung-Min Jang¹; Jin-Young Jeong¹; Kihoon Eom¹; Kyeong Sik Jin²; Jaehun Park²; Gun-Sik Park¹

¹Seoul National University, Korea, Republic of; ²Pohang Accelerator Laboratory, Korea, Republic of

12:15 **On The Issue Of Universal Dielectric Responses In Proteins** 628 **W2B.6**

Konstantin Motovilov¹; Aleksei Pronin²; Elena Zhukova¹; Zarina Gagkaeva¹; Victor Torgashev³; Maxim Savinov⁴; Vadim Grinenko⁵; Mikhail Belyanchikov¹; Artem Grebenko¹; Konstantin Sidoruk⁶; Martin Dressel⁷; Boris Gorshunov¹

¹Moscow Institute of Physics and Technology, Russian Federation; ²A.M. Prokhorov General Physics Institute, Russian Federation;

³Faculty of Physics, Southern Federal University, Russian Federation; ⁴Institute of Physics, ASCR, Czech Republic; ⁵Leibniz Institute for Solid State and Materials Research Dresden, Germany; ⁶Scientific Center of Russian Federation Research Institute for Genetics and Selection of Industrial, Russian Federation; ⁷1. Physikalisches Institut, Universität Stuttgart, Germany

11:00 - 12:30 Sources, Detectors, and Receivers III (W2C) **Auditorium 11**
Session Chair: Benjamin Williams, UCLA, USA

11:00 **Measuring Photon Statistics In The Terahertz Domain (Keynote Talk)** 629 **W2C.1**

Jérôme Faist; Ileana-Cristina Benea-Chelmus; Markus Roesch; Matthias Beck; Giacomo Scalari
ETH Zurich, Switzerland

11:30 **High-Performance Terahertz Detector Based On Plasmonic Nano-antennas** 630 **W2C.2**

Nezih Yardimci; Mona Jarrahi

University of California - Los Angeles, United States

11:45	Broadband Heterodyne Terahertz Detector Based On Plasmonic Photomixing 632	W2C.3
	<u>Ning Wang</u> ¹ ; <u>Mona Jarrahi</u> ²	
	¹ University of Michigan, Ann Arbor, United States; ² University of California, Los Angeles, United States	
12:00	Improvement Of Heterodyne THz Electro-Optic Sampling Technique 634	W2C.4
	<u>Masahiko Tani</u> ¹ ; Takuro Yasumoto ¹ ; Daiki Gotoh ¹ ; Hideaki Kitahara ¹ ; Takashi Furuya ¹ ; Kohji Yamamoto ¹ ; Michael Bakunov ²	
	¹ Research Center for Development of Far-Infrared Region, University of Fukui, Japan; ² University of Nizhny Novgorod, Russian Federation	
12:15	Plasmonic Large-Area Photoconductive Emitters Operating At 1550 nm 636	W2C.5
	<u>Nezih Yardimci</u> ; Mona Jarrahi	
	University of California - Los Angeles, United States	

11:00 - 12:30		Metamaterial Structures and Applications III (W2D)	Auditorium 12
Session Chair: Giacomo Scalari, ETH Zürich, Switzerland			
11:00	Photoconductive Microprobe Based Near-field Scanning Of Terahertz Resonances Of A Single High-index TiO₂ Microsphere 638	W2D.1	
<u>Michael Nagel</u> ¹ ; Simon Sawallich ¹ ; Catherine Elissalde ² ; Patrick Mounaix ³ ; Christopher Matheisen ¹ ¹ Protemics GmbH, Germany; ² ICMCB/Univ. Bordeaux, France; ³ IMS UMR/Univ. Bordeaux, France			
11:15	Near-field Visualization Of Electromagnetically Induced Transparency In Resonant Terahertz Structures 640	W2D.2	
<u>Alexei Halpin</u> ¹ ; Arkabrata Bhattacharya ¹ ; Christiaan Mennes ² ; Jaime Gomez-Rivas ¹ ¹ Dutch Institute for Fundamental Energy Research (DIFFER), Netherlands; ² Dutch Institute for Atomics, Molecular and Optical Physics (AMOLF), Netherlands			
11:30	Near-field Imaging Of Magnetic Resonance In Terahertz Dielectric Resonator Antennas 642	W2D.3	
<u>Wendy Lee</u> ¹ ; Korbinian J. Kaltenecker ² ; Shruti Nirantar ³ ; Withawat Withayachumnankul ¹ ; Markus Walther ² ; Madhu Bhaskaran ³ ; Bernd M. Fischer ¹ ; Christophe Fumeaux ¹ ; Sharath Sriram ³ ¹ The University of Adelaide, Australia; ² University of Freiburg, Germany; ³ RMIT University, Australia			
11:45	Hiding Images With Multi-Color THz Metasurfaces 644	W2D.4	
<u>Ashish Chanan</u> ¹ ; Andrew Paulsen ² ; Ajay Nahata ¹ ¹ University of Utah, United States; ² Massachusetts Institute of Technology, United States			
12:00	Observation And Control Of Spoof Localized Surface Plasmons Using Terahertz Near-field Microscope (Keynote Talk) 646	W2D.5	
Shohei Morimoto ¹ ; Takashi Arikawa ¹ ; François Blanchard ² ; Kyosuke Sakai ³ ; Keiji Sasaki ³ ; <u>Koichiro Tanaka</u> ¹ ¹ Kyoto University, Japan; ² École de Technologie Supérieure (ÉTS) Montréal, Canada; ³ Hokkaido University, Japan			

11:00 - 12:30		High-Field THz Wave Generation and Nonlinear THz Physics I (W2E)	Room 19
Session Chair: Mikhail Belkin, University of Texas at Austin, USA			
11:00	Terahertz Funneling-Induced Quantum Tunneling At Angstrom Scale (Keynote Talk) 649 Dai-Sik Kim ¹ ; Young-Mi Bahk ¹ ; Joon-Yeon Kim ¹ ; Bong Joo Kang ² ; Yong Seung Kim ³ ; Joohyun Park ⁴ ; Won Tae Kim ² ; Tae Yun Kim ¹ ; Taehee Kang ¹ ; Jiyeah Rhie ¹ ; Sanghoon Han ¹ ; Hyeongtag Jeon ⁴ ; Cheol-Hwan Park ¹ ; Fabian Rotermund ² ¹ Seoul National University, Korea, Republic of; ² Ajou University, Korea, Republic of; ³ Sejong University, Korea, Republic of; ⁴ Hanyang University, Korea, Republic of		W2E.1
11:30	Coherent Control Of The Motion Of Electrons In A Tunnel Junction Via Single-Cycle THz Electric Field 652 Katsumasa Yoshioka ¹ ; Ikufumi Katayama ¹ ; Yasuo Minami ¹ ; Masahiro Kitajima ² ; Shoji Yoshida ³ ; Hidemi Shigekawa ³ ; Jun Takeda ¹ ¹ Yokohama National University, Japan; ² Yokohama National University, LxRay Co. Ltd., Japan; ³ University of Tsukuba, Japan		W2E.2
11:45	Robustness Of Various Metals Against High THz Field Induced Damage 653 Jianfei Zhu ¹ ; Krzysztof Iwaszczuk ¹ ; Abebe Tilahun Tarekegne ¹ ; Yungui Ma ² ; Peter Uhd Jepsen ¹ ¹ Technical University of Denmark, Denmark; ² Zhejiang University, China		W2E.3
12:00	Extreme Laser Spectral Broadening Driven By Intense THz Field 655 Carlo Vicario ¹ ; Mostafa Shalaby ² ; Christoph P. Hauri ² ¹ Paul Scherrer Institute, Switzerland; ² PSI, Switzerland		W2E.4
12:15	High-field High-repetition-rate Prototype User Facility For Coherent THz Control Of Matter 657 Sergey Kovalev ¹ ; Bert Green ¹ ; Nilesh Awari ¹ ; Alan Fisher ² ; Nikola Stojanovic ³ ; Michael Gensch ¹ ¹ Helmholz Zentrum Dresden Rossendorf, Germany; ² SLAC, United States; ³ DESY, Germany		W2E.5
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Session Chair: Lyobov V. Titova, Worchester Polytechnic Institute, USA			
14:00	Biomedical THz Imaging And Spectroscopy: High Sensitivity Is Both A Blessing And A Curse (Keynote Talk) 659 Emma Pickwell-MacPherson Chinese University of Hong Kong, Hong Kong		W3A.1
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14:45	In Vivo THz Imaging Of Human Skin: Accounting For Occlusion Effects 663 Qiushuo Sun; Yuezhi He; Edward Parrott; Emma Pickwell-MacPherson The Chinese University of Hong Kong, Hong Kong		W3A.3

15:00	Biomedical Diagnosis Of Cerebral Ischemia With Continuous-wave THz Imaging 665 <u>Jia Shi</u> ¹ ; Yuye Wang ¹ ; Degang Xu ¹ ; Chao Yan ¹ ; Longhuang Tang ¹ ; Pan Duan ¹ ; Yixin He ¹ ; Hongxiang Liu ¹ ; Tunan Chen ² ; Hua Feng ² ; Jianquan Yao ¹ ¹ Tianjin University, China; ² Third Military Medical University, China	W3A.4
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14:00 - 15:30 Spectroscopy and Material Properties VII (W3B) Auditorium 10		
Session Chair: Dmitry Turchinovich, Max Planck Institute for Polymer Research, Germany		
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14:30	Using Terahertz Pulses To Shed New Light On Quantum Materials (Keynote Talk) 673 <u>Rohit Prasankumar</u> ; Pamela Bowlan; Kamaraju Natarajan; Dmitry Yarotski; Antoinette Taylor Los Alamos National Laboratory, United States	W3B.3
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14:00 - 15:30		Sources, Detectors, and Receivers IV (W3C)	Auditorium 11
Session Chair: Michele Ortolani, Sapienza Università di Roma, Italy			
14:00	Dual-gated Graphene With Ion Gel Gates As Mid-infrared Photodetectors 678 <u>Sébastien Nanot</u> ¹ ; Cheng Peng ² ; Dmitri Efetov ² ; Mara Batzer ¹ ; Romain Parret ¹ ; Dirk Englund ² ; Frank Koppens ¹ ¹ ICFO - Institute of Photonic Sciences, Spain; ² MIT, Massachusetts Insititute of technology, United States		W3C.1
14:15	Zero-bias Schottky Diode Based THz Detectors At Room Temperature Using Metallic Nanowire 679 <u>Ahid Hajo</u> ; Shihab Al-Daffaie; Oktay Yilmazoglu; Mohammad Tanvir Haidar; Franko Küppers TU Darmstadt, Germany		W3C.2
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14:15	Phase-sensitive Observation Of THz-dressed Exciton 701	W3E.2
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14:30	Coherent Manipulation Of Laser-induced Spin Reorientation Dynamics In ErFeO₃ With Intense THz Magnetic Nearfields 703	W3E.3
	<u>Takayuki Kurihara</u> ¹ ; Hiroshi Watanabe ¹ ; Makoto Nakajima ¹ ; Tohru Suemoto ² ¹ Osaka University, Japan; ² Toyota Physical and Chemical Research Institute, Japan	
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	<u>Hiromichi Hoshina</u> ¹ ; Hal Suzuki ¹ ; Chiko Otani ¹ ; Masaya Nagai ² ; Keigo Kawase ² ; Akinori Irizawa ² ; Goro Isoyama ² ¹ RIKEN, Japan; ² Osaka University, Japan	
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¹Universität Regensburg, Germany; ²Universität Marburg, Germany; ³University of Toronto, Canada

16:00 - 17:00		Applications in Biology and Medicine II (W4A)	Room 20
Session Chair: Emma Pickwell-MacPherson, Chinese University of Hong Kong, Hong Kong			
16:00	First Millimeter-Wave Animal In Vivo Measurements Of L-Glucose And D-Glucose: Further Steps Towards A Non-Invasive Glucometer (Keynote Talk) 708 <u>Peter Siegel</u> ¹ ; Wangde Dai ² ; Robert Kloner ² ; Marie Csete ² ; Victor Pikov ³ ¹ California Institute of Technology, United States; ² Huntington Medical Research Institutes, United States; ³ Glaxo Smith Kline, United Kingdom	W4A.1	
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16:45	DNA Detection By THz Pumping 713 <u>Andrew Chernev</u> ¹ ; Leonid Klyachkin ² ; Anna Malyarenko ² ; Anton Emel'yanov ¹ ; Michael Dubina ¹ ; Nikolay Bagraev ² ¹ Saint Petersburg Academic University, Russian Federation; ² Ioffe Physical Technical Institute, Russian Federation	W4A.3	
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Session Chair: Fritz Keilmann, Ludwig Maximilian University, Munich, Germany			
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16:45 **THz Spectroscopy And THz Generation In A Prussian Blue Analogue** 721 **W4B.4**
 Amine Ould Hamouda¹; Antonio Iazzolino²; Hiroko Tokoro³; Shin-Ichi Ohkoshi³; Eric Freysz⁴
¹Universite Bordeaux, France; ²Université Bordeaux, France; ³The university of Tokyo, Japan; ⁴Université Bordeaux, LOMA, France

16:00 - 17:00	Gyro-Oscillators and Amplifiers I (W4C) Session Chair: Stefano Alberti, EPFL, Switzerland	Auditorium 11
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16:00 **Development Of A Wide-Band Window In HE_{1,1} Guide For Gyrotrons** 722 **W4C.1**
 Michael Read¹; R. Lawrence Ives¹; David Marsden¹; George Collins¹; William Guss²; Richard J. Temkin²; Jeffrey Neilson³; John Lohr⁴; Thuc Bui¹; Yuri Gorelov⁴; Charles Muller⁴; Mirela Cengher⁴; Alexandra LeViness⁴
¹Calabazas Creek Research Inc., United States; ²Massachusetts Institute of Technology, United States; ³Lexam Research, United States; ⁴General Atomic, United States

16:15 **Proposal Of An Inverse Magnetron Injection Gun For Future Hollow-Cylindrical-Cavity High Power Gyrotrons** 724 **W4C.2**
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 Karlsruhe Institute of Technology, Germany

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Vladimir Manuilov; Vladimir Semenov
 Insitute of Applied Physics RAS, Russian Federation

16:45 **1.5 MW CW RF Load For Gyrotrons** 728 **W4C.4**
Lawrence Ives¹; David Marsden¹; Thuc Bui¹; Jeffrey Neilson²; George Collins¹; Rasul Karimov¹; Maxwell Mizuhara¹
¹Calabazas Creek Research, Inc., United States; ²LEXAM Research, United States

16:00 - 17:00	Metamaterial Structures and Applications V (W4D) Session Chair: Korbinian Kaltenecker, French-German Research Institute of Saint-Louis, France	Auditorium 12
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16:00 **Transparent Terahertz Metamaterial With A Refractive Index Of Zero** 730 **W4D.1**
Tatsuya Sato; Takehito Suzuki
 Ibaraki University, Japan

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16:30 **Terahertz Waveguide With A Negative Effective Index Of Refraction Measured Using Time Domain Techniques** 734 **W4D.3**
Shashank Pandey; Barun Gupta; Brandon Cui; David Schurig; Ajay Nahata
 University of Utah, United States

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Mohammad Parvinnezhad Hokmabadi; Elizabeth Philip; Elmer Rivera; Patrick Kung; Seongsin Margaret Kim
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 Jiayu Zhao; Jing Yang; Ping Chen; Cheng Gong; Lu Sun; Xiaolei Wang; Weiwei Liu
 Institute of Modern Optics, Nankai University, China

16:30 **THz And X-ray Emission As A Tool For Study Of Ionization Dynamics In Gas Clusters (Keynote Talk)** 740 **W4E.2**
Alexander Shkurinov¹; Alexey Balakin¹; Marat Dzhidzhoev¹; Vyacheslav Gordienko¹; Mikhail Esaulkov²; Igor Kotelnikov³
¹Lomonosov Moscow State University, Russian Federation; ²Institute on Laser and Information Technologies of the RAS (ILIT RAS), Russian Federation; ³Budker Institute of Nuclear Physics, Russian Federation

17:00 - 18:30	Wednesday Poster Session (W5P) Session Chairs: Peter Uhd Jepsen, Krzysztof Iwaszczuk, Morten Bache, DTU, Denmark	Congress Hall A
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A Frequency-Domain Spectrometer Design For Measurement Of THz Smith-Purcell Radiation 743 **W5P.08.01**
Xuling Lin; Zhuo Zhang; Xuan Zhang; Ningjuan Ruan
 Beijing Institute of Space Mechanics and Electricity, China

Cherenkov-type Generation And Detection Of Terahertz Radiation In A GaAs With Metal-coat Structure 745 **W5P.08.02**
 Ramon delos Santos¹; Shinpei Ozawa²; Valynn Katrine Mag-usara²; Syougo Azuma²; Anthony Tuico¹; Vernalyn Copa¹; Arnel Salvador¹; Kohji Yamamoto²; Armando Somintac¹; Kazuyoshi Kurihara²; Hideaki Kitahara²; Masahiko Tani²; Elmer Estacio¹
¹University of the Philippines Diliman, Philippines; ²University of Fukui, Japan

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Sergey Morozov¹; Vladimir Romyantsev²; Alexander Kadykov²; Konstantin Kudryavtsev²; Aleksander Dubinov²; Mikhail Fadeev²; Nikolay Mikhailov³; Sergey Dvoretzki³; Stephan Winnerl⁴; Manfred Helm⁴
¹Institute for Physics of Microstructures RAS, Russian Federation; ²Institute for Physics of Microstructures, Russian Federation; ³A.V.Rzhanov Institute of Semiconductor Physics, Siberian Branch of RAS, Russian Federation; ⁴Institute of Ion Beam Physics and Materials Research, Helmholtz-zentrum Dresden-Rossendorf, Germany

Investigations On A Graphene Loaded Terahertz Gyrotron No show. Not included in digest. **W5P.08.04**
Diwei Liu; Sen Gong; Tao Zhao; Min Hu; Renbin Zhong; Shenggang Liu
 University of Electronic Science and Technology of China, China

Cyclotron Electron Beam Excited Surface Plasmon Polaritons Light Radiation 749 **W5P.08.05**

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National Key Laboratory of Science and Technology on Space Microwave, China

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Daichi Suzuki; Shunri Oda; Yukio Kawano

Tokyo Institute of Technology, Japan

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Jie Liu; Jian Zhang; Xianjin Deng; Bin-bin Cheng

China Academy of Engineering Physics, China

The Diode Heterostructures For THz Devices

No show. Not included in digest.

W5P.08.18

Dmitry Pavelyev¹; Aleksey Vasil'ev²; Vladimir Kozlov³; Yuri Koschurinov⁴; Elizaveta Obolensky⁴; Sergey Obolensky⁴; Victor Ustinov⁵;

Dmitry Pavelyev⁴; Vladimir Kozlov³; Yuri Koschurinov⁴; Sergey Obolensky⁴; Victor Ustinov¹

¹ Lobachevsky State University of Nizhny Novgorod, Russian Federation; ²SHM R&E Center, RAS, Saint Petersburg, Russian Federation; ³IPM RAS, Nizhny Novgorod, Russian Federation; ⁴Lobachevsky State University of Nizhny Novgorod, Russian Federation; ⁵Ioffe Institute, Saint Petersburg, Russian Federation

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Alessandro Garufo; Giorgio Carluccio; Nuria Llombart; Andrea Neto

Delft University of Technology, Netherlands

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Nanjing University, China

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No show. Not included in digest.

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Tianxin Yang; Da Xing; Zhaoyu Lu; Cheng Guo; Chunfeng Ge; Zhaoying Wang

Tianjin University, China

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Wenjuan Wang; Jie Wen; Zhifeng Li; Ning Li; Wei Lu

Shanghai Institute of Technical Physics, Chinese Academy of Sciences, China

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P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Russian Federation

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¹ University of Glasgow, United Kingdom; ² University of Sheffield, United Kingdom; ³ Rohm Co. Ltd., Japan	
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- [Han Sun](#)¹; Y. X. Zhang²
¹Terahertz Science Cooperative Innovation Center, China; ²Terahertz Science Cooperative Innovation Center, UESTC, China
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¹Kotelnikov Institute of Radio Engineering and Electronics of RAS, Russian Federation; ²Keysight Technologies, Inc., United States
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- [Jingwen He](#)¹; Xinke Wang²; Yan Zhang¹
¹Harbin Institute of Technology, China; ²Capital Normal University, China
- High Efficiency Broadband THz Wave Modulator Based On Conjugated Polymer Organic Films** [Ting He](#); Bo Zhang; Jingling Shen No show. Not included in digest. **W5P.11.03**
- Capital Normal University, China
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¹Tottori University, Japan; ²Rice University, United States
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¹Indian Institute of Technology Bombay, India; ²Tata Institute of Fundamental Research, Mumbai, India; ³Oklahoma State University Stillwater, OK, United States

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Juliano G. Hayashi¹; Richard Lwin¹; Alessio Stefani¹; Simon Fleming¹; Alexander Argyros¹; Boris T. Kuhlme²
¹IPOS, School of Physics, University of Sydney, Australia; ²CUDOS, School of Physics, University of Sydney, Australia

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Andrey Malkin; Naum Ginzburg; Alexander Sergeev; Vladislav Zaslavsky; Sergey Fil'chenkov
Institute of Applied Physics RAS, Russian Federation

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Alexandr Sadovnikov¹; Evgeny Beginin¹; Yuri Sharaevsky¹; Andrey Grachev¹; Svetlana Sheshukova¹; Sergey Nikitov²

¹Saratov State University, Nonlinear Processes Department, Russian Federation; ²Kotel'nikov Institute of Radio Engineering and Electronics of Russian Academy of Science, Russian Federation

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¹ETH Zürich, Switzerland; ²PSI, Switzerland

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¹Tottori University, Japan; ²Osaka University, Japan

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No show. Not included in digest. W5P.11.15

Lu Duan; Xin Rao; Jun Zhou

University of Electronic Science and Technology of China, China

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Maryam Hajji; Dagou Zeze; Claudio Balocco; Andrew J. Gallant
School of Engineering and Computing sciences, Durham University, United Kingdom

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¹Peking University, China; ²Institute of Electronics, Chinese Academy of Sciences, China
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¹Institute of Physics, Czech Academy of Sciences, Czech Republic; ²IMS, Univ. Bordeaux, UMR CNRS, France; ³ICMCB, Univ. Bordeaux, CNRS, France
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¹University of Alabama, United States; ²University of Alabama in Huntsville, United States
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¹Technical University of Denmark, Denmark; ²Technical University of Denmark, Department of Energy Conversion and Storage, Denmark; ³Technical University of Denmark, Department of Photonics Engineering, Denmark
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¹Kyoto University, Japan; ²École de Technologie Supérieure (ÉTS) Montréal, Canada; ³Hokkaido University, Japan
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¹Lancaster University, United Kingdom; ²University of California Davis, United States; ³Beijing Vacuum Electronic Research Institute, China; ⁴National University of Defense Technology, China

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Huibo Zhang¹; Alexander Aryshev²; Andrew Lancaster¹; Mikhail Shevelev²; Nobuhiro Terunuma²; George Doucas¹; Ivan Konoplev¹

¹University of Oxford, United Kingdom; ²High Energy Accelerator Research Organization (KEK), Japan

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¹Capital Normal University, China; ²Beijing Institute of Technology, China; ³Peking University, China; ⁴University of Rochester, United States

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National Key Laboratory of Science and Technology on Test Physics and Numerical Mathematics, Beijing, China

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Hamamatsu Photonics K.K., Japan

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Osaka Univ., Japan

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Budker Institute of Nuclear Physics, Russian Federation

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Xavier Ropagnol¹; Mohsen Raeiszadeh²; Safieddin Safavi-Naeini²; Matthew Reid³; Marc Andre Gauthier¹; Tsuneyuki Ozaki¹

¹INRS-EMT, Canada; ²University of Waterloo, Canada; ³UNBC, Canada

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Nobuhiko Sarukura¹; Masashi Yoshimura¹; Makoto Nakajima¹

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³Research Center for Development of Far-Infrared Region, University of Fukui, Japan

Compact Pseudospark Electron Beam Driven Millimeter And Terahertz Radiation Sources

No show. Not included in digest.

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University of Strathclyde, United Kingdom

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Mira Naftaly¹; John Molloy¹; Nikolas Stavrios²; Konstantin Litvinenko³

¹National Physical Laboratory UK, United Kingdom; ²FELIX Laboratory, Netherlands; ³Univeristy of Surrey, United Kingdom

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Mostafa Shalaby; Carlo Vicario; Christoph P. Hauri

Paul Scherrer Institute, Switzerland

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Xin Chai¹; Xavier Ropagnon¹; Mohsen Raeiszadeh²; Safieddin Safavi-Naeini²; Matthew Reid³; Marc Andre Gauthier¹; Tsuneyuki Ozaki¹

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Time Domain Analysis Of A Superconductor's Nonlinear THz Response 901 **W5P.14.13**

G. Lawrence Carr; Xiaoxiang Xi

Brookhaven National Laboratory, United States

Hybrid Tilted-pulse-front Excitation Scheme For Efficient Generation Of High-energy Terahertz Pulses 902 **W5P.14.14**

László Pálfalvi; Zoltán Ollmann; Levente Tokodi; Andrea Buzády; János Hebling

Institute of Physics, University of Pécs, Hungary

Advanced Techniques For Terahertz Detection Using Spectral-domain Interferometry 904 **W5P.15.01**

Akram Ibrahim¹; Marie Kirouac-Turmel²; Gargi Sharma³; Kanwarpal Kanwarpal Singh⁴; Densi Férachou¹; Tsuneyuki Ozaki¹

¹Institut National de la Recherche Scientifique, Énergie, Matériaux et Télécommunications, Canada; ² Institut National de la Recherche Scientifique, Énergie, Matériaux et Télécommunications, Canada; ³University of Massachusetts Lowell, United States;

⁴Harvard Medical School, United States

Real-time Absolute Frequency Measurement Of CW-THz Radiation Using Dual THz Combs Induced By A Free-running, Dual-wavelength, Mode-locked Fiber Laser 906 **W5P.15.02**

Tatsuya Mizuguchi¹; Guoqing Hu²; Xin Zhao²; Takeo Minamikawa¹; Yuli Yang²; Cui Li²; Zheng Zheng²; Takeshi Yasui¹

¹Tokushima University, Japan; ²Beihang University, China

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Michele Ortolani¹; Emilie Sakat²; Valeria Giliberti³; Leonetta Baldassarre¹; Monica Bollani⁴; Virginia Altoe⁵; Mauro Melli⁵; Alexander Weber-Bargioni⁵; Andrea Notargiacomo⁴; Marialilia Pea⁴; Michele Celebrano⁶; Marco Finazzi⁶; Jacopo Frigerio⁶; Giovanni Isella⁶; Paolo Biagioni⁶; Jean-Paul Hugonin²; Stefano Cabrini⁵

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Nanotecnologie, Italy; ⁵Lawrence Berkeley National Labs, United States; ⁶Politecnico di Milano, Italy

Calibration Of A Broadband Plasma-based Terahertz Full-polarimetry System

M. Hassan Arbab¹; Elyas Bayati¹; Kenichi Oguichi²; Shinichi Watanabe²; Dale Winebrenner¹

¹University of Washington, United States; ²Keio University, Japan

No show. Not included in digest.

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Ferroelectric Cathode For MMW Gyrotrons 908

Moshe Einat; Yafit Orbach; Eviatar Avraham; Moritz Pilosof
Ariel University, Israel

W5P.21.01

Thursday, 29 September 2016

08:30 - 10:00		Thursday Plenary Session	Plenary Auditorium 10/11/12
		Session Chair: Peter H. Siegel, California Institute of Technology, USA	
08:30	Development And Applications Of High Power THz Radiation Sources -- Gyrotrons 910		H1.1
	<u>Toshitaka Idehara</u> University of Fukui, FIR Center, Japan		
09:15	Exploring The Use Of Metamaterial Apertures In A Millimeter-wave Imaging System 913		H1.2
	<u>David Smith</u> Duke University, United States		
11:00 - 12:30		Applications in Biology and Medicine III (H2A)	Room 20
		Session Chair: Vincent Wallace, University of Western Australia, Australia	
11:00	Terahertz Super-focusing Device And Its Application In Bio-detection (Keynote Talk) 914		H2A.1
	<u>Yiming Zhu</u> ; Xiaofei Zang; Yan Peng; Lin Chen University of Shanghai for Science and Technology, China		
11:30	Diagnosis Of Malignant Melanoma By Micromachined Near-Field Millimeter-Wave Probe 916		H2A.2
	Fritzi Töpfer ¹ ; Lennart Emtestam ² ; <u>Joachim Oberhammer</u> ¹ ¹ KTH Royal Institute of Technology, Sweden; ² Karolinska Institutet, Sweden		
11:45	Assessment Of Plants' Reaction To Drought Stress Using THz Time Domain Spectroscopy 918		H2A.3
	<u>Ralf Gente</u> ; Norman Born; Jan C. Balzer; Martin Koch Philipps-Universität Marburg, Germany		
12:00	Probing Living Cells Composition By THz Attenuated Total Reflection - Application To Quantitative Permeabilization Measurement 920		H2A.4
	<u>Marianne Grognot</u> ; Guilhem Gallot Ecole Polytechnique, France		
12:15	The Effects Of The Slow Freeze And Thaw Process On The THz Properties Of Biological Samples 922		H2A.5
	<u>Yuezhi He</u> ¹ ; Edward Parrott ² ; Emma Pickwell-MacPherson ² ; Benjamin S.-Y. Ung ² ¹ The Chinese University of Hong Kong, China; ² The Chinese University of Hong Kong, Hong Kong		
11:00 - 12:30		Spectroscopy and Material Properties IX (H2B)	Auditorium 10
		Session Chair: Christoph Lange, University of Regensburg, Germany	

11:00	A Smart Method For Magneto-optical Spectroscopy With A Quarter-wave Plate 924 <u>Tomohide Morimoto</u> ; Genki Yamashita; Masaya Nagai; Masaaki Ashida Graduate School of Engineering Science/ Osaka University, Japan	H2B.1
11:15	Hot Carrier Dynamics In Monolayer Graphene Studied By Optical Pump/ultra-broadband THz Probe Spectroscopy 926 <u>Sho Ikeda</u> ¹ ; Masatsugu Yamashita ² ; Chiko Otani ³ ¹ Tohoku University, Japan; ² RIKEN, Japan; ³ Tohoku University, RIKEN, Japan	H2B.2
11:30	Spin-Resolved Terahertz Spectroscopy (Keynote Talk) 927 Dmitry Turchinovich ¹ ; Zuanming Jin ² ; Tobias Kampfrath ³ ; Mathias Kläui ⁴ ; Mischa Bonn ¹ ¹ Max Planck Institute for Polymer Research, Germany; ² Shanghai University, China; ³ Fritz Haber Institute of the Max Planck Society, Germany; ⁴ University of Mainz, Germany	H2B.3
12:00	Photomixer-based THz Electron Magnetic Resonance Measurements 929 <u>David Daughton</u> ¹ ; Masaki Yamaguchi ² ; Li Li ³ ; Jing Han ³ ; Katsuya Inoue ³ ¹ Lake Shore Cryotronics, United States; ² Toyo Corporation, Japan; ³ Center for Chiral Science, Department of Chemistry and Institute for Advanced Materials Research, Hi, Japan	H2B.4
12:15	Magneto-optical Hexaferrites For Terahertz Isolating Applications 931 <u>Tomás Horák</u> ¹ ; Mathias Vanwolleghem ¹ ; Guillaume Ducournau ¹ ; Kamil Postava ² ; Pierre Koleják ² ; Jean-François Lampin ¹ ¹ IEMN, CNRS UMR 8520, France; ² Department of Physics and Nanotechnology Centre, Technical University of Ostrava, Czech Republic	H2B.5

11:00 - 12:30		Auditorium 12
Sources, Detectors, and Receivers V (H2C)		
Session Chair: XueChu Shen, Shanhai Institute of Technical Physics, China		
11:00	1.3 W Femtosecond Mid-IR Source At 8.5 μm Wavelength 933 Marcus Seidel ¹ ; <u>Oleg Pronin</u> ¹ ; Ferenc Krausz ² ¹ Max-Planck-Institute of Quantum Optics, Germany; ² Max-Planck-Institute of Quantum Optics, LMU München, Germany	H2C.1
11:15	Continuous Wave Terahertz Molecular Laser Optically Pumped By A Quantum Cascade Laser 935 Antoine Pagies; Guillaume Ducournau; <u>Jean-François Lampin</u> IEMN - CNRS, France	H2C.2
11:30	Frequency Accuracy And Resolution Of A GaP Continuous-Wave Terahertz Spectrometer 937 <u>Tetsuo Sasaki</u> ¹ ; Tadao Tanabe ² ; Jun-ichi Nishizawa ² ¹ Shizuoka University, Japan; ² Tohoku University, Japan	H2C.3
11:45	Multi-mJ Infrared Femtosecond Hydrogen Raman Laser 939 <u>Carlo Vicario</u> ¹ ; Mostafa Shalaby ¹ ; Leonid Losev ² ; Alexander Konyashchenko ² ; Christoph P. Hauri ¹	H2C.4

¹Paul Scherrer Institute, Switzerland; ²P. N. Lebedev Physical Institute, Russian Federation

12:00 **Strong Sub-terahertz Surface Waves Generated On Metal Wires By Relativistic-intensity Laser Pulses (Keynote Talk)** 941 **H2C.5**
Shigeki Tokita¹; Kensuke Teramoto²; Shunsuke Inoue²; Ryo Yasuhara³; Takeshi Nagashima⁴; Masaki Hashida²; Junji Kawanaka¹; Noriaki Miyanaga¹; Shuji Sakabe²
¹Osaka University, Japan; ²Kyoto University, Japan; ³National Institute for Fusion Science, Japan; ⁴Setsunan University, Japan

11:00 - 12:30		Gyro-Oscillators and Amplifiers II (H2D)	Auditorium 11
		Session Chair: Alexander Litvak, Institute of Applied Physics, Russian Academy of Sciences	
11:00	Start-up Scenario Studies In Gyrotron Oscillator Using A Novel Linear And Spectral Code 943 H2D.1 <u>Jérémy Genoud</u> ¹ ; Trach-Minh Tran ¹ ; Stefano Alberti ¹ ; Patryk Kaminski ¹ ; Falk Braunmueller ¹ ; Jean-Philippe Hogge ¹ ; Minh Quang Tran ¹ ; William C. Guss ² ; Richard J. Temkin ² ¹ Swiss Plasma Center, EPFL, Switzerland; ² Plasma Science and Fusion Center, MIT, United States		
11:15	Development Of Multi-frequency Gyrotron For ITER And DEMO At QST 945 H2D.2 <u>Ryosuke Ikeda</u> ; Yasuhisa Oda; Takayuki Kobayashi; Masayuki Terakado; Ken Kajiwar; Koji Takahashi; Shinichi Moriyama; Keishi Sakamoto National Institutes for Quantum and Radiological Science and Technology, Japan		
11:30	Development And Preliminary Tests Of A Second Harmonic Double-Beam Continuous Wave Gyrotron With Operating Frequency Of 0.79 THz 947 H2D.3 <u>Mikhail Glyavin</u> ¹ ; Vladimir Manuilov ² ; Irina Zotova ² ; Eduard Khutoryan ³ ; Andrey Malkin ² ; Mikhail Morozkin ² ; Roman Rozental ² ; Anton Sedov ² ; Alexander Tsvetkov ² ; Vladislav Zaslavsky ² ; Naum Ginzburg ² ; Toshitaka Idehara ³ ¹ GYCOM, Insitute of Applied Physics RAS, Russian Federation; ² Insitute of Applied Physics RAS, Russian Federation; ³ Research Center for Development of Far-Infrared Region, University of Fukui, Japan		
11:45	Radiation Input/Output System Of A Broadband W-band Gyrotron Traveling-Wave Amplifier 949 H2D.4 <u>Sergey Mishakin</u> ; Sergey Samsonov; Dmitry Sobolev; Anton Gashturi; Gregory Denisov Institute of Applied Physics, Russian Federation		
12:00	Development Of Gyro-Devices At IAP/GYCOM In The Range From Gigahertz To Terahertz (Keynote Talk) 951 H2D.5 <u>Gregory Denisov</u> ; Mikhail Glyavin Institute of Applied Physics, Russian Federation		

11:00 - 12:30		High-Field THz Wave Generation and Nonlinear THz Physics IV (H2E)	Room 19
		Session Chair: Krzysztof Iwaszczuk, Technical University of Denmark, Denmark	
11:00	Desorption Via Large-amplitude Intermolecular Vibration Driven By The Intense Picosecond THz Pulses (Keynote Talk) 954 H2E.1 <u>Masaya Nagai</u> ¹ ; Eiichi Matsubara ¹ ; Masaaki Ashida ¹ ; Masanori Fuyuki ² ; Keigo Kawase ³ ; Akinori Irizawa ³ ; Goro Isoyama ³ ; Jun Aoki ³ ;		

	Michisato Toyoda ³ ¹ Osaka Univ., Japan; ² Kio University, Japan; ³ Osaka University, Japan	
11:30	Highly Efficient Generation Of Strong-Field 0.1-THz Radiation 956 Xiaojun Wu; Anne-Laure Calendron; Koustuban Ravi; Chun Zhou; Michael Hemmer; Fabian Reichert; Dongfang Zhang; Huseyin Cankaya; Luis Zapata; <u>Nicholas Matlis</u> ; Franz X. Kärtner DESY, Germany	H2E.2
11:45	Semiconductor THz Source Scalable To mJ Energy 958 <u>József Fülöp</u> ¹ ; Gyula Polónyi ¹ ; Balázs Monoszlai ² ; Giedrius Andriukaitis ³ ; Tadas Balciunas ³ ; Audrius Pugzlys ³ ; Andrius Baltuska ³ ; János Hebling ⁴ ¹ MTA-PTE High-Field Terahertz Research Group, Hungary; ² ELI-ALPS, Hungary; ³ Vienna University of Technology, Austria; ⁴ University of Pecs, Hungary	H2E.3
12:00	Generation Of 0.19-mJ THz Pulses In LiNbO3 Driven By 800-nm Femtosecond Laser 960 <u>Li-Guo Zhu</u> ; Sen-Cheng Zhong China Academy of Engineering Physics, China	H2E.4
12:15	Compact Device For Intense THz Light Generation: Contact Grating With Fabry-Perot Resonator 962 <u>Masaaki Tsubouchi</u> ; Keisuke Nagashima; Fumiko Yoshida; Yoshihiro Ochi; Momoko Maruyama National Institutes for Quantum and Radiological Science and Technology, Japan	H2E.5
14:00 - 15:30 Astronomy, planetary and environmental science (H3A) Auditorium 10 Session Chair: Ken Wood, QMC Instruments Ltd., United Kingdom		
14:00	Performance Of A 961 Pixel Kinetic Inductance Detector System For Future Space Borne Observatories 964 <u>Jochem Baselmans</u> ¹ ; Juan Bueno ¹ ; Ozan Yurduseven ² ; Stephen Yates ¹ ; Nuria Llombart ² ; Vignesh Murugesan ¹ ; David Thoen ² ; Andrey Baryshev ¹ ; Andrea Neto ² ¹ SRON Netherlands Institute for Space Research, Netherlands; ² Delft University of Technology, Netherlands	H3A.1
14:15	Setup For Terahertz Low Temperature Emissivity Measurements 965 Alexandra Galeeva ¹ ; Dmitry Dolzhenko ¹ ; Andrey Nicorici ² ; Ludmila Ryabova ¹ ; <u>Dmitry Khokhlov</u> ¹ ¹ M.V. Lomonosov Moscow State University, Russian Federation; ² Institute of Applied Physics of the Moldavian Academy of Sciences, Moldova, Republic of	H3A.2
14:30	THz Solar Photometers Performance On Board Of A Trans-Antarctic Stratospheric Balloon Flight 966 <u>Pierre Kaufmann</u> ¹ ; Andre Abrantes ² ; Emilio Bortolucci ³ ; Amir Caspi ⁴ ; Luis Olavo Fernandes ¹ ; Grigory Kropotov ⁵ ; Amauri Kudaka ¹ ; Glenn Laurent ⁴ ; Nelson Machado ² ; Rogerio Marcon ³ ; Adolfo Marun ⁶ ; Valery Nicolaev ⁵ ; Ray Fernando Hidalgo Ramirez ¹ ; Jean-Pierre Raulin ¹ ; Pascal Saint-Hilaire ⁷ ; Albert Shih ⁸ ; Claudemir Silva ⁹ ; Alexander Timofeevsky ⁵	H3A.3

¹Universidade Presbiteriana Mackenzie, Brazil; ²Propertech, Brazil; ³Unicamp, Brazil; ⁴SRI, United States; ⁵Tydex, Russian Federation; ⁶Icate, Argentina; ⁷UC Berkeley, United States; ⁸NASA GSFC, United States; ⁹Neuron, Brazil

14:45 **Tropospheric Water And Cloud ICE (TWICE) Millimeter And Submillimeter-wave Radiometer Instrument For 6U-Class Nanosatellites** 968 **H3A.4**

Steven Reising¹; Pekka Kangaslahti²; Erich Schlecht²; Jonathan Jiang²; Xavier Bosch-Lluis¹; Mehmet Ogut¹; Yuriy Goncharenko¹; Sharmila Padmanabhan²; Richard Cofield²; Nacer Chahat²; Shannon Brown²; William Deal³; Alex Zamora³; Kevin Leong³; Sean Shih³; Gerry Mei³

¹Colorado State University, United States; ²Jet Propulsion Laboratory, California Institute of Technology, United States; ³Northrop Grumman Corporation, United States

15:00 **Development Of Superconducting THz Receivers For Radio Astronomy (Keynote Talk)** 970 **H3A.5**

Yoshinori Uzawa¹; Yasunori Fujii²; Matthias Kroug²; Kazumasa Makise¹; Alvaro Gonzalez²; Keiko Kaneko²; Takafumi Kojima²; Akihira Miyachi²; Shingo Saito¹; Hirotaka Terai¹; Zhen Wang¹

¹National Institute of Information and Communications Technology, Japan; ²National Astronomical Observatory of Japan, Japan

14:00 - 15:30 Gyro-Oscillators and Amplifiers III (H3B) Auditorium 11
Session Chair: Manfred Thumm, Karlsruhe Institute of Technology, Germany

14:00 **Status And Experimental Results Of The European 1 MW, 170 GHz Industrial CW Prototype Gyrotron For ITER (Keynote Talk)** 973 **H3B.1**

Jean-Philippe Hogge¹; Stefano Alberti¹; Falk Braunmueller¹; Christian Schlatter¹; Minh Quang Tran¹; Avramidis Konstantinos²; Gerd Gantenbein²; Stefan Illy²; Zisis Ioannidis²; John Jelonnek²; Jianbo Jin²; Thorsten Kobarg²; Markus Losert²; Ioannis Pagonakis²; Tomasz Rzesnicki²; Martin Schmid²; Manfred Thumm²; Virgile Hermann³; Yoann Rozier³; Ioannis Chelis⁴; John Vomvouridis⁴; George Latsas⁵; Ioannis Tigelis⁵; William Bin⁶; Alessandro Bruschi⁶; Maurizio Lontano⁶; Walter Kasperek⁷; Carsten Lechte⁷; Ferran Albajar⁸; Tullio Bonicelli⁸; Pierre-Etienne Frigot⁸; Anastasios Zisis⁵

¹EPFL-SPC, Switzerland; ²KIT, Germany; ³TED, France; ⁴NTUA, Greece; ⁵UoA, Greece; ⁶IFP-CNR, Italy; ⁷IGVP, Germany; ⁸F4E, Spain

14:30 **Developing A 0.33-THz Broadband Pulse Gyrotron** 976 **H3B.2**

Chao-Hai Du; Xiang-Bo Qi; Bin Huang; Shi Pan; Xiao Ji; Pu-Kun Liu
Peking University, China

14:45 **Three-Wave Interaction During Electron Cyclotron Resonance Heating And Current Drive** 978 **H3B.3**

Stefan Kragh Nielsen¹; Asger Schou Jacobsen²; Søren Kjer Hansen¹; Søren Bang Korsholm¹; Frank Leipold¹; Morten Stejner¹; Severin Denk²; Joerg Stober²; Martin Schubert²; Dietmar Wagner²

¹Technical University of Denmark, Denmark; ²MPG IPP Garching, Germany

15:00 **Project Of Gyrotron For DNP Applications Based On NMR Magnet** 980 **H3B.4**

Vladimir Bratman¹; Alexey Fedotov¹; Yuriy Kalynov¹; Petr Makhlov¹; Vladimir Manuilov²

¹Institute of Applied Physics, Russian Academy of Sciences, Russian Federation; ²Nizhny Novgorod State University, Russian

Federation

15:15 **Passive Mode-Locking, Dissipative Solitons And Generation Of Ultrashort Pulses In Electron Oscillators With Saturable Absorber In The Feedback Loop** 982 **H3B.5**
Naum Ginzburg; Gregory Denisov; Michael Vilkov; Alexander Sergeev; Irina Zotova; Ekaterina Kocharovskaya
 IAP RAS, Russian Federation

14:00 - 15:30		Sources, Detectors, and Receivers VI (H3C) Session Chair: Timothy Korter, Syracuse University, USA	Auditorium 12
14:00	Field Enhancement Effect In Nano-electrodes For THz Generation And Detection 983 H3C.1 <u>Kiwon Moon</u> ¹ ; Eui Su Lee ² ; Il-Min Lee ² ; Sang-Pil Han ¹ ; Kyung Hyun Park ¹ ¹ Electronics and Telecommunications Research Institute, Korea, Republic of; ² , Electronics and Telecommunications Research Institute, Korea, Republic of		
14:15	High-resolution Terahertz Spectrometer With Up To 110 m Single-pass Base 985 H3C.2 <u>Zhiming Huang</u> ¹ ; Jingguo Huang ¹ ; Yanqing Gao ¹ ; Qiuji Yang ¹ ; Jing Wu ¹ ; Yue Qu ¹ ; Yu.M. Andreev ² ; K.A. Kokh ³ ; G.V. Lanski ² ; A.A. Lisenko ⁴ ; V.A. Svetlichnyi ³ ¹ Shanghai Institute of Technical Physics, Chinese Academy of Science, China; ² Institute of Monitoring of Climatic and Ecological Systems SB RAS, Russian Federation; ³ Siberian Physical-Technical Institute of Tomsk State University, Russian Federation; ⁴ Institute of Atmospheric Optics SB RAS, Russian Federation		
14:30	Uncooled Phonon Noise Limited La_{0.7}Sr_{0.3}MnO₃ Suspended Bolometers 987 H3C.3 <u>Bruno Guillet</u> ¹ ; Shuang Liu ¹ ; Ammar Aryan ¹ ; Carolina Adamo ² ; Darrell Schlom ² ; Laurence Méchin ¹ ¹ GREYC (CNRS-ENSICAEN-Université de Caen Normandie), France; ² Cornell University, United States		
14:45	Real-time Detection Of The THz Pulses From A THz OPO Using AlGaIn/GaN TeraFETs 989 H3C.4 <u>Wissem Zouaghi</u> ¹ ; Daniel Voß ¹ ; Cormac McDonnell ² ; David Mundy ² ; James R. P. Bain ² ; Nils Hempler ² ; Graeme P. Malcolm ² ; Gareth T. Maker ² ; Adam Rämmer ³ ; Sergey A. Chevtchenko ³ ; Wolfgang Heinrich ³ ; Viktor Krozer ¹ ; Hartmut G. Roskos ¹ ¹ Johann Wolfgang Goethe-Universität, Germany; ² M-Squared Lasers Ltd, United Kingdom; ³ Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik (FBH), Germany		
15:00	Terahertz Generation From Graphene Surface Plasmon Polaritons Excited By A Cyclotron Electron Beam 990 H3C.5 <u>Tao Zhao</u> ; Min Hu; Renbin Zhong; Xiaoxing Chen; Ping Zhang; Sen Gong; Chao Zhang; Shenggang Liu University of Electronic Science and Technology of China, China		
15:15	THz Detection By Multi-layered Topological Insulator 992 H3C.6 <u>Kotaro Makino</u> ¹ ; Shota Kuromiya ² ; Keisuke Takano ² ; Kosaku Kato ² ; Makoto Nakajima ² ; Hitoshi Ida ³ ; Moto Kinoshita ³ ; Yuta Saito ⁴ ; Junji Tominaga ⁴ ; Takashi Nakano ⁴		

¹National Institute of Advanced Industrial Science and Technology (AIST), Japan; ²Institute of Laser Engineering, Osaka University, Japan; ³National Metrology Institute of Japan, AIST, Japan; ⁴Nanoelectronics Research Institute, National Institute of Advanced Industrial Science and Technology, Japan

14:00 - 15:30		MMW and submillimeter wave systems I (H3D)	Room 20
Session Chair: Xianbin Yu, Zhejiang University, China			
14:00	Accurate Parameter Extraction From Liquids Measured Using On-chip Terahertz Spectroscopy 994		H3D.1
	<u>Matthew Swithenbank</u> ; Christopher Russell; Andrew Burnett; Linahe Li; A. Giles Davies; Edmund H. Linfield; John Cunningham; Christopher Wood University of Leeds, United Kingdom		
14:15	Reflection Of Terahertz Surface Plasmons From Plane Mirrors And Transparent Plates 996		H3D.2
	<u>Vasily Gerasimov</u> ¹ ; Boris Knyazev ¹ ; Alexey Lemzyakov ¹ ; Alexey Nikitin ² ; German Zhizhin ² ¹ Budker Institute of Nuclear Physics of SB RAS, Russian Federation; ² Scientific and Technological Center for Unique Instrumentation of RAS, Russian Federation		
14:30	High-Power THz Pulse Radiation With GHz Repetition Rate In Silicon (Keynote Talk) 998		H3D.3
	M. Mahdi Assefzadeh; Peiyu Chen; <u>Aydin Babakhani</u> Rice University, United States		
15:00	Extension Of The Multi-Frequency ECRH System At ASDEX Upgrade 1001		H3D.4
	<u>Dietmar Wagner</u> ¹ ; Joerg Stober ¹ ; Michael Kircher ¹ ; Fritz Leuterer ¹ ; Francesco Monaco ¹ ; Max Muenich ¹ ; Martin Schubert ¹ ; Hartmut Zohm ¹ ; Gerd Gantenbein ² ; John Jelonnek ² ; Manfred Thumm ² ; Andreas Meier ² ; Theo Scherer ² ; Dirk Strauss ² ; Walter Kasperek ³ ; Carsten Lechte ³ ; Burkhard Plaum ³ ; Alexander Zach ³ ; Alexander Litvak ⁴ ; Gregory Denisov ⁴ ; Alexey Chirkov ⁴ ; Leonid Popov ⁵ ; Vadim Nichiporenko ⁵ ; Vadim Myasnikov ⁵ ; Evgeny Tai ⁵ ; Elena Solyanova ⁵ ; Sergey Malygin ⁵ ¹ Max-Planck-Institut fuer Plasmaphysik, Germany; ² Karlsruhe Institute of Technology, Germany; ³ University of Stuttgart, Germany; ⁴ Institute of Applied Physics, Nizhny Novgorord, Russian Federation; ⁵ GYCOM, Russian Federation		
15:15	A Traveling Wave Tube For 92-95 GHz Band Wireless Applications 1003		H3D.5
	<u>Claudio Paoloni</u> ¹ ; Frédéric André ² ; Sophie Kohler ² ; Viktor Ulrozer ³ ; Quang Trung Le ⁴ ; Rosa Letizia ¹ ; Ahmed Sabaawi ¹ ; Giacomo Ulisse ³ ; Ralph Zimmerman ⁴ ¹ Lancaster University, United Kingdom; ² Thales Electron Devices, France; ³ Goethe University of Frankfurt, Germany; ⁴ HF Systems Engineering GmbH, Germany		
14:00 - 15:30		High-Field THz Wave Generation and Nonlinear THz Physics V (H3E)	Room 19
Session Chair: Morten Bache, Technical University of Denmark, Denmark			
14:00	Tracking The Ultrafast Motion Of A Single Molecular Orbital (Keynote Talk) 1005		H3E.1

	<u>Dominik Peller</u> ; Tyler L. Cocker; Ping Yu; Jascha Repp; Rupert Huber University of Regensburg, Germany	
14:30	Off-axis THz Parametric Oscillator In LiNbO₃ Slab Waveguide 1008 <u>YuChung Chiu</u> ¹ ; Tsong-Dong Wang ² ; Po-Chang Wang ¹ ; Yen-Chieh Huang ¹ ¹ National Tsing Hua University, Taiwan; ² Chung-Shan Institute of Science and Technology, Taiwan	H3E.2
14:45	Nonlinear Frequency Mixing In Quantum Cascade Lasers: Towards Broadband Wavelength Shifting And THz Up-Conversion 1010 <u>Sarah Houver</u> ¹ ; Armand Lebreton ¹ ; Raffaele Colombelli ² ; Lianhe Li ³ ; Edmund H. Linfield ³ ; A. Giles Davies ³ ; Jérôme Tignon ¹ ; Sukhdeep Dhillon ¹ ¹ Laboratoire Pierre Aigrain, France; ² Institut d'Electronique Fondamentale, France; ³ University of Leeds, United Kingdom	H3E.3
15:00	THz-Wave Generation Via Cascaded Optical Parametric Amplification 1011 Michael Hemmer ¹ ; Giovanni Cirmi ¹ ; Fabian Reichert ² ; Koustuban Ravi ¹ ; <u>Frederike Ahr</u> ¹ ; Huseyin Cankaya ¹ ; Nicholas Matlis ¹ ; Oliver Mücke ¹ ; Luis Zapata ¹ ; Franz X. Kärtner ¹ ¹ Center for Free Electron Laser Sciences (CFEL), Germany; ² Physics Department, University of Hamburg, Germany	H3E.4
15:15	All-optical Platform For THz Pulse-shaping 1013 <u>Lauren Gingras</u> ¹ ; François Blanchard ² ; David G. Cooke ¹ ¹ McGill University, Canada; ² École de Technologie Supérieure, Canada	H3E.5

16:00 - 17:30		Auditorium 10
Spectroscopy of Gases, Liquids, and Solids I (H4A)		
Session Chair: Jianming Dai, Tianjin University, China		
16:00	Parallel-Plate Waveguide Terahertz Time Domain Spectroscopy For 2D Materials (Keynote Talk) 1015 Manjakavahoaka Razanoelina ¹ ; Filchito Renee Bagsican ¹ ; Xiang Zhang ² ; Lulu Ma ² ; Hironaru Murakami ¹ ; Robert Vajtai ² ; Daniel Mittleman ³ ; Pulickel Ajayan ² ; Junichiro Kono ² ; Masayoshi Tonouchi ¹ ; <u>Iwao Kawayama</u> ¹ ¹ Osaka University, Japan; ² Rice University, United States; ³ Brown University, United States	H4A.1
16:30	A Compact Gas Spectroscopy Sensor System Based On A Voltage-Frequency-Tuned 245 GHz SiGe Transmitter And Receiver 1017 <u>Nick Rothbart</u> ¹ ; Klaus Schmalz ² ; Johannes Borngräber ² ; Dietmar Kissinger ² ; Heinz-Wilhelm Hübers ¹ ¹ German Aerospace Center, Germany; ² IHP, Germany	H4A.2
16:45	Mid-infrared Intersubband Absorption From P-Ge Quantum Wells On Si 1019 Kevin Gallacher ¹ ; Andrea Ballabio ² ; Ross William Millar ³ ; Jacopo Frigerio ⁴ ; Aneeqa Bashir ⁵ ; Ian MacLaren ⁵ ; Giovanni Isella ² ; Michele Ortolani ⁶ ; Douglas J. Paul ³ ¹ University of Glasgow, United Kingdom; ² L-NESS, Dipartimento di Fisica del Politecnico di Milano,, Italy; ³ University of Glasgow, School of Engineering, Rankine Building, United Kingdom; ⁴ L-NESS, Dipartimento di Fisica del Politecnico di Milano, Italy; ⁵ University of Glasgow, School of Physics and Astronomy, Kelvin Building, United Kingdom; ⁶ Center for Life Nanosciences, Istituto	H4A.3

Italiano di Tecnologia, Italy

17:00	Pressure-Dependent Terahertz Time-Domain Spectroscopy 1021 <u>Wei Zhang</u> ¹ ; Daniel Nickel ² ; Daniel Mittleman ¹ ¹ Brown University, United States; ² Rice University, United States	H4A.4
17:15	Effects Of Nonsphericity On Attenuation Characteristics Of THz Atmospheric Propagation 1023 Yuwen Wang ¹ ; <u>Fang Zhang</u> ² ; Zhiwei Dong ² ; Huifang Sun ² ¹ Graduate School of Chinese Academy of Engineering Physics, China; ² Institute of Applied Physics and Computational Mathematics,, China	H4A.5

16:00 - 17:30	Gyro-Oscillators and Amplifiers IV (H4B) Session Chair: Richard J. Temkin, MIT, USA	Auditorium 11
16:00	High Power Oscillation Test Of 300 GHz Band Gyrotron For Practical Use In Collective Thomson Scattering Diagnostics In LHD (Keynote Talk) 1025 <u>Teruo Saito</u> ¹ ; Yuusuke Yamaguchi ² ; Yoshinori Tatematsu ¹ ; Takumi Hirobe ¹ ; Jun Kasa ¹ ; Shin Kubo ³ ; Takashi Shimozuma ³ ; Kenji Tanaka ³ ; Masaki Nishiura ⁴ ; Masafumi Fukunari ¹ ¹ University of Fukui, Japan; ² Yamaguchi, Japan; ³ National Institute for Fusion Science, Japan; ⁴ The University of Tokyo, Japan	H4B.1
16:30	Gyrotron Operation During The First W7-X Campaign - Handling And Reliability 1027 <u>Harald Braune</u> ; Heinrich Laqua; Stefan Marsen; Dmitry Moseev; Frank Noke; Frank Purps; Niko Schneider; Tino Schulz; Torsten Stange; Peter Uhren Max-Planck-Inst. f. Plasmaphysik Garching/Greifswald, Germany	H4B.2
16:45	Completion Phase Of Russian Gyrotron System Development In Russia 1029 <u>Leonid Popov</u> ¹ ; Yuri Belov ¹ ; Alexey Chirkov ² ; Gregory Denisov ² ; Yuri Efimov ³ ; Anatoly Ereemeev ² ; Alexander Litvak ² ; Vladimir Malygin ² ; Vadim Miasnikov ¹ ; Evgeny Sokolov ¹ ; Elena Soluyanov ¹ ; Evgeny Tai ¹ ; Sergey Usachev ¹ ; Igor Roy ⁴ ¹ Gycom Ltd., Russian Federation; ² Institute of applied physics, Russian Federation; ³ RTSoft, Russian Federation; ⁴ NRC Kurchatov Institute, Russian Federation	H4B.3
17:00	High Pulse Repetition Frequency Operation Of A W-band Gyro-TWA Based On A Cusp Electron Beam Source 1031 <u>Wenlong He</u> ; Craig Donaldson; Liang Zhang; Paul McElhinney; Huabi Yin; Jason Garner; Kevin Ronald; Adrian Cross; Alan Phelps University of Strathclyde, United Kingdom	H4B.4
17:15	Recent Experiments And Simulations On Gyro-TWTs With Helically Corrugated Waveguides 1033 <u>Sergey Samsonov</u> ¹ ; Alexander Bogdashov ² ; Gregory Denisov ³ ; Igor Gachev ² ; Sergey Mishakin ² ¹ Institute of Applied Physics RAS, GYCOM Ltd., Russian Federation; ² Institute of Applied Physics RAS, Russian Federation; ³ Institute of Applied Physics RAS, Nizhny Novgorod State University, Russian Federation	H4B.5

16:00 - 17:30		Sources, Detectors, and Receivers VII (H4C)	Auditorium 12
		Session Chair: Andreas Steiger, PTB Berlin, Germany	
16:00	Photon Noise Limited Performance Over An Octave Of Bandwidth Of Kinetic Inductance Detectors For THz Astronomy 1035	H4C.1	
<u>Juan Bueno</u> ¹ ; Ozan Yurduseven ² ; Stephen Yates ¹ ; Nuria Llombart ² ; Vignesh Murugesan ¹ ; David Thoen ¹ ; Andrey Baryshev ¹ ; Andrea Neto ¹ ; Jochem Baselmans ¹			
¹ SRON - Netherlands Institute of Space Research, Netherlands; ² Delft University of Technology, Netherlands			
16:15	THz Fast Detectors And THz Metadevices Based On Type-II Superconductors 1037	H4C.2	
<u>Sara Cibella</u> ¹ ; Maria Gabriella Castellano ¹ ; Fabio Chiarello ¹ ; Alessandro Gaggero ¹ ; Ennio Giovine ¹ ; Giacomo Scarlari ² ; Guido Torrioli ¹ ; roberto Leoni ¹			
¹ Istituto di Fotonica e Nanotecnologie CNR, Italy; ² institute of Quantume Electronics ETH, Switzerland			
16:30	Broadband And Low NEP Terahertz-Wave Detection Using Pre-Amplifier-Integrated Fermi-Level Managed Barrier Diode 1039	H4C.3	
<u>Hiroshi Ito</u> ¹ ; Tadao Ishibashi ²			
¹ Kitasato University, Japan; ² NTT Electronics Techno, Japan			
16:45	Sub-THz Zero-bias Detector With High Performances Based On Heterostructure Low Barrier Diode 1041	H4C.4	
<u>Salman Nadar</u> ¹ ; Mohammed Zaknoute ² ; Xavier Wallart ³ ; Christophe Coinon ⁴ ; Emilien Peytavit ¹ ; Guillaume Ducournau ¹ ; Florent Gamand ⁵ ; Matthieu Werquin ⁵ ; Christophe Gaquiere ⁴ ; Jean-François Lampin ¹			
¹ Terahertz Photonics Group, IEMN, UMR CNRS 8520, Lille1 University, France; ² Anode Groupe, IEMN, UMR CNRS 8520, Lille1 University, France; ³ IEMN, UMR CNRS 8520, Lille1 University, France; ⁴ IEMN, UMR CNRS 8520, Lille1 University, France; ⁵ MC2-Technologie, France			
17:00	Single Photon Detection Of Terahertz Waves And Its Applications (Keynote Talk) 1043	H4C.5	
<u>Kenji Ikushima</u>			
Tokyo University of A & T, Japan			
16:00 - 17:30		MMW and submillimeter wave systems II (H4D)	Room 20
		Session Chair: Aydin Babakhani, Rice University, USA	
16:00	Initial Measurements With WM164 (1.1-1.5THz) VNA Extenders 1046	H4D.1	
<u>Daniel Koller</u> ; Steven Durant; Cliff Rowland; Eric Bryerton; Jeffrey Hesler			
Virginia Diodes, Inc., United States			
16:15	A Compact Electronically Tunable 282 GHz High-Power Transmitter 1048	H4D.2	
<u>Eric Bryerton</u> ; Jeffrey Hesler			
Virginia Diodes, Inc., United States			
16:30	Novel Communication Paradigms At MmWaves For 5G (Keynote Talk)	H4D.3	
Not presented			

[Harish Krishnaswamy](#)
Columbia University, United States

17:00	Pathfinder - A High Resolution 220 GHz Imaging Radar Providing Phenomenological Data For Security Scanner Development 1050	H4D.4
	David Macfarlane ¹ ; Duncan Robertson ¹ ; Tomas Bryllert ² ¹ University of St Andrews, United Kingdom; ² Wasa Millimetre Wave AB, Sweden	
17:15	3-D High-Resolution Imaging At 240 GHz With A Single-Chip FMCW Monostatic Radar In SiGe HBT Technology 1052	H4D.5
	Janusz Grzyb ; Konstantin Statnikov; Neelanjan Sarmah; Ullrich R. Pfeiffer University of Wuppertal, Germany	

16:00 - 17:30		Free Electron Lasers and Synchrotron Radiation I (H4E)	Room 19
Session Chair: George Neil, Thomas Jefferson National Accelerator Facility, USA			
16:00	Characterization Of THz Pulse Emitted From Femtosecond Electron Bunch Using Photoconductive Antenna And Interferometer 1054	H4E.1	
<u>Koichi Kan</u> ; Jinfeng Yang; Masao Gohdo; Takafumi Kondoh; Itta Nozawa; Yoichi Yoshida The Institute of Scientific and Industrial Research (ISIR), Osaka University, Japan			
16:15	Ultrashort Electromagnetic Clusters Formation By Two-Stream Superheterodyne Free Electron Lasers 1056	H4E.2	
Viktor Kulish ¹ ; Alexander Lysenko ² ; Iurii Volk ² ; <u>Oleksandr Rybalko</u> ³ ¹ National Aviation University, Ukraine; ² Sumy State University, Ukraine; ³ DTU Elektro, Denmark			
16:30	THz Coherent Transition Radiation At TeraFERMI: First Characterization Of THz Radiation And Electron Beam Dynamics 1058	H4E.3	
<u>Simone Di Mitri</u> ¹ ; Andrea Perucchi ¹ ; Luca Capasso ¹ ; Paola Di Pietro ¹ ; Fabio Giorgianni ² ; Stefano Lupi ² ; Cristian Svetina ¹ ; Marco Veronese ¹ ; Enrico Allaria ¹ ; Laura Badano ¹ ; Silvano Bassanese ¹ ; Maurizio Bossi ¹ ; Bruno Diviacco ¹ ; Mario Ferianis ¹ ; Eugenio Ferrari ¹ ; Giulio Gaio ¹ ; David Gauthier ¹ ; Federico Gelmetti ¹ ; Luca Giannessi ¹ ; Sandi Gruljia ¹ ; Massimo Milloch ¹ ; Giuseppe Penco ¹ ; Eleonore Roussel ¹ ; Mauro Trovò ¹ ; Claudio Serpico ¹ ¹ Elettra - Sincrotrone Trieste S.C.p.A., Italy; ² CNR-IOM, Università Roma La Sapienza, Italy			
16:45	Capabilities Of Coherent Spontaneous Terahertz Undulator Radiation From Short Electron Bunches 1060	H4E.4	
<u>Vladimir Bratman</u> ¹ ; Nezhah Balal ² ; Ilya Bandurkin ¹ ; Aharon Friedman ² ; Yury Lurie ² ; Andrey Savilov ¹ ¹ Institute of Applied Physics, Russian Academy of Sciences, Russian Federation; ² Ariel University, Israel			
17:00	Spectral Characterization Of THz Radiation From The Free Electron Laser FLARE And Its Implications For High-resolution ESR (Keynote Talk) 1062	H4E.5	
<u>Mykhaylo Ozerov</u> ¹ ; Bence Bernath ² ; Dmytro Kamenskyi ² ; Britta Redlich ¹ ; Lex van der Meer ¹ ; Jan Kees Maan ¹ ¹ FELIX laboratory / Radboud University, Netherlands; ² HFML-EMFL / Radboud University, Netherlands			

17:30 - 19:00		Thursday Poster Session (H5P)	Congress Hall A
		Session Chairs: Peter Uhd Jepsen, Krzysztof Iwaszczuk, Morten Bache, DTU, Denmark	

Integration Of A Hole Coupler With A Turnstile For Sideband-Separation	1064	H5P.01.01
<u>Doug Henke</u> NRC Herzberg Astronomy and Astrophysics, Canada		
Design Of A Dual Band Optical Calibration Device For ALMA Receivers	1066	H5P.01.02
<u>Daniel Montofre</u> ¹ ; Andrey Baryshev ¹ ; Fausto Patricio Mena ² ; Ronald Hesper ¹ ¹ Kapteyn Institute, Netherlands; ² DIE, Universidad de Chile, Chile		
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IAP RAS, Russian Federation

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H5P.21.26

Ioannis Pagonakis; Guenter Dammertz; Gerd Gantenbein; Stefan Illy; Bernhard Piosczyk; Manfred Thumm; Jianghua Zhang; John Jelonnek
Karlsruhe Institute of Technology, Germany

Progress In Developments Of High-Power, Long-Pulse And Multi-Frequency ECH/CD System For JT-60SA 1227

H5P.21.27

Takayuki Kobayashi; Ryosuke Ikeda; Yasuhisa Oda; Koji Takahashi; Hiroyuki Shidara; Masayuki Sawahata; Masayuki Terakado; Shinichi Hiranai; Fumiaki Sato; Kenji Wada; Jun Hinata; Kenji Yokokura; Katsumichi Hoshino; Shinichi Moriyama

National Institutes for Quantum and Radiological Science and Technology, Japan

Influence Of Reflections On Frequency Stability, Tunability And Mode Competition In The Second-Harmonic THz Gyrotron 1229 H5P.21.28

Eduard Khutoryan¹; Toshitaka Idehara¹; Maria Melnikova²; Andrey Rozhnev²; Nikita Ryskin²

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Prospects Of Realization Of Powerful Sub-Millimeter Relativistic Cyclotron Masers 1231 H5P.21.29

Nikolai Peskov¹; Naum Ginzburg¹; Andrey Savilov¹; Vladislav Zaslavsky¹; Giuseppe Dattoli²; Ivan Spassovsky²; Mikhail Glyavin¹; Emanuele Palma²; Silvio Ceccuzzi²; Francesco Mirizzi²; Gian Luca Ravera²

¹Institute of Applied Physics RAS, Russian Federation; ²ENEA, Italy

Measurement Of Polarization Properties Of ECRH Polarizers At 170 GHz 1233 H5P.21.30

Sudheer Jawla¹; Hannah Hoffmann¹; Michael Shapiro¹; Richard J. Temkin¹; Gregory Hanson²

¹Massachusetts Institute of Technology, United States; ²Oak Ridge National Laboratory, United States

Effective Compression Of Photo-Injector Electron Bunches In The Negative-Mass Undulators 1235 H5P.22.01

Andrey Savilov; Ilya Bandurkin; Ilya Kurakin

Institute of Applied Physics, Russian Federation

Robust, High Quantum Efficiency, Long-life Photocathodes 1237 H5P.22.02

Lawrence Ives¹; Eric Montgomery²; Lou Falce¹; George Collins¹; David Marsden¹; Rasul Karimov¹; Thuc Bui¹

¹Calabazas Creek Research, Inc., United States; ²University of Maryland, United States

Full-wave Numerical Modeling Of An Infrared Free Electron Laser Using FDTD/PIC 1239 H5P.22.03

Arya Fallahi; Alireza Yahaghi; Franz X. Kärtner

DESY-Center for Free Electron Laser Science, Germany

Millimeter-Wave Receiver Design For Plasma Diagnostics 1241 H5P.26.01

Frank Leipold¹; Asger Schou Jacobsen¹; Thomas Jensen¹; Martin Jessen¹; Søren Bang Korsholm¹; Stefan Nielsen¹; Jesper Rasmussen¹; Mirko Salewski¹; Morten Stejner¹; Frank Leipold²; Soeren Hansen¹

¹Danish Technical University, Denmark; ²Technical University of Denmark, Denmark

Velocity-space Tomography Of Fusion Plasmas By Collective Thomson Scattering Of Gyrotron Radiation 1243 H5P.26.02

Mirko Salewski¹; Asger Schou Jacobsen¹; Thomas Jensen¹; Søren Bang Korsholm¹; Frank Leipold¹; Jens Madsen¹; Dmitry Moseev²; Stefan Kragh Nielsen²; Jesper Rasmussen²; Morten Stejner¹

¹Technical University of Denmark, Denmark; ²Max-Planck Institute for Plasma Physics, Greifswald, Germany

From FIR And Millimeter Waves To THz Plasma Diagnostics Applications 1245 H5P.26.03

Marco Zerbin; Francesca Bombarda; Andrea Doria; Giuseppe Galatola-Teka; Emilio Giovenale

ENEA Frascati, Italy

Proof Of Principle Of Electron Cyclotron Emission As A Complementary Diagnostic For The Plasma Position 1247

HSP.26.04

Chris Rapson; Rainer Fischer; Anja Gude; Severin Denk; Matthias Willensdorfer; Wolfgang Treutler; the ASDEX Upgrade Team; Louis Giannone

Max Planck Institute of Plasma Physics, Germany

High Power Microwave Diagnostic For The Fusion Energy Experiment ITER 1249

HSP.26.05

Søren Bang Korsholm¹; Frank Leipold²; Bruno Gonçalves³; Heidi Gutierrez²; Thomas Jensen²; Martin Jessen²; Esben Klinkby²; Axel Larsen²; Volker Naulin²; Stefan Nielsen²; Erik Nonbøl²; Jesper Rasmussen²; Mirko Salewski²; Morten Stejner²; Arianna Taormina²; Paco Sanchez⁴; Laura Sanchez⁴; Johan Oosterbeek⁵

¹Technical University of Denmark, Denmark; ²DTU, Denmark; ³IST, Portugal; ⁴Fusion for Energy, Spain; ⁵Eindhoven University of Technology, Netherlands

Measuring Main-ion Temperatures In ASDEX Upgrade Using Scattering Of ECRH Radiation 1251

HSP.26.06

Morten Stejner¹; Stefan Nielsen¹; Asger Schou Jacobsen¹; Søren Bang Korsholm¹; Frank Leipold¹; Rachael McDermott²; Jesper Rasmussen¹; Mirko Salewski¹; Martin Schubert²; Joerg Stober²; Dietmar Wagner²

¹Technical University of Denmark, Denmark; ²Max-Planck-Institut für Plasmaphysik, Germany

Friday, 30 September 2016

08:15 - 08:30	Closing Ceremony	Plenary Auditorium 10/11/12
08:30 - 10:00	Friday Plenary Session Session Chair: Gun-Sik Park, Seoul National University, Korea	Plenary Auditorium 10/11/12
08:30	Past, Present, And Future Of Infrared And THz Activities In China 1253 <u>Yiming Zhu</u> ; Songlin Zhuan University of Shanghai for Science and Technology, China	F1.1
09:15	Terahertz Driven Linear Accelerators And Photon Sources 1254 <u>Franz X. Kärtner</u> DESY and University of Hamburg, Germany	F1.2
11:00 - 12:30	Spectroscopy of Gases, Liquids and Solids II (F2A) Session Chair: Rohit Prasankumar, Los Alamos National Laboratory, USA	Auditorium 10
11:00	Vibrational Contrast Imaging And Nanospectroscopy Of Single Cell Membranes By Mid-IR Resonantly-enhanced Mechanical Photoexpansion (Keynote Talk) 1256 <u>Valeria Giliberti</u> ¹ ; Michela Badioli ² ; Leonetta Baldassarre ² ; Alessandro Nucara ² ; Paolo Calvani ² ; Eglof Ritter ³ ; Ljiljana Puskar ⁴ ; Peter Hegemann ³ ; Ulrich Schade ⁴ ; Michele Ortolani ² ¹ Istituto Italiano di Tecnologia, Italy; ² Department of Physics, Sapienza University of Rome, Italy; ³ Humboldt-Universität zu Berlin, Institut für Biologie, Germany; ⁴ Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Germany	F2A.1
11:30	THz-Induced Kerr Effect In Polar Liquids 1259 <u>Peter Zalden</u> ¹ ; Xiaojun Wu ² ; Liwei Song ² ; Haoyu Huang ² ; Oliver Mücke ² ; Christian Bressler ¹ ; Franz X. Kärtner ² ¹ XFEL, Germany; ² DESY, Germany	F2A.2
11:45	Dependence Of Water Relaxation Dynamics On Lipid Structure 1261 <u>Kihoon Eom</u> ; Jung-Min Jang; Jin-Young Jeong; Yuncheol Yang; Da-Hye Choi; Heyjin Son; In-Kyoung Park; Seonmyeong Kim; Gun-Sik Park Seoul National University, Korea, Republic of	F2A.3
12:00	A Cw-Terahertz Gas Analysis System With ppm Detection Limits 1263 <u>Christian Hepp</u> ¹ ; Stephan Luettjohann ¹ ; Axel Roggenbuck ² ; Anselm Deninger ² ; Simon Nellen ³ ; Thorsten Göbel ³ ; Michael Joerger ¹ ; Roland Harig ¹	F2A.4

¹Bruker Optik GmbH, Germany; ²TOPTICA Photonics AG, Germany; ³Fraunhofer Heinrich-Hertz Institute, Germany

12:15 **Red-Shift In THz Resonant Signatures Induced By Hydration Variation** 1265 **F2A.5**
W-D. Zhang; Elliott Brown
Wright State University, United States

11:00 - 12:30	Protein Dynamics and Molecular Spectroscopy (F2B)	Auditorium 11
	Session Chair: Andrea Markelz, SUNY Buffalo, USA	

11:00 **Measuring Protein Elasticity With Terahertz Spectroscopy** 1267 **F2B.1**

Michael Ruggiero¹; Timothy Korter²

¹University of Cambridge, United Kingdom; ²Syracuse University, United States

11:15 **THz Near-field Spectroscopy Of Proteins: Towards Detection Of Long-range Electrodynamic Interactions** Authors chose not to publish **F2B.2**

Jeremie Torres¹; Mathias Lechellon²; Ilaria Nardecchia²; Luca Varani³; Irene Donato⁴; Matteo Gori⁴; Marco Pettini⁴ ¹University

of Montpellier, France; ²Centre d'Immunologie de Marseille-Luminy, INSERM-U1104 -- Universit'e Aix-Marseille -- 13288

Marsei, France; ³Institut d'\electronique et des Syst\emes -- Universit'e de Montpellier, France; ⁴Centre de Physique

Théorique de Marseille, France

11:30 **Anisotropic Absorption Measurements Reveal Protein Dynamical Transition In Intramolecular Vibrations (Keynote Talk)** 1269 **F2B.3**

Mengyang Xu¹; Katherine Niessen¹; Yanting Deng¹; Nigel Michki¹; Edward Snell²; Andrea Markelz¹

¹SUNY Buffalo, United States; ²Hauptman Woodward Medical Research Institute, United States

12:00 **Time-Resolved Studies Using FTIR Spectrometers: Molecular Dynamics At Phase Transitions** 1270 **F2B.4**

Martin Dressel; Tobias Peterseim

Universität Stuttgart, Germany

12:15 **Structure Resonance Energy Transfer From EM Wave To Rod-like Virus** 1272 **F2B.5**

Chi-Kuang Sun¹; Yi-Chun Tsai¹; Chuan-Liang Kao¹; Han-Ching Wang²; Chu-Fang Lo¹; Yi-Jan Chen¹

¹National Taiwan University, Taiwan; ²National Cheng Kung University, Taiwan

11:00 - 12:30	Sources, Detectors, and Receivers VIII (F2C)	Auditorium 12
	Session Chair: Nuria Llombart-Juan, Delft University of Technology, the Netherlands	

11:00 **Broadband 0.03-1.032THz Signal Generation And Radiation Based On A Fully-Integrated 4x2 Impulse Radiating Array In 90nm SiGe BiCMOS** 1274 **F2C.1**

M. Mahdi Assefzadeh; Aydin Babakhani

Rice University, United States

11:15 **Higher Power Multipliers For Terahertz Sources** 1276 **F2C.2**

Thomas Crowe; Jeffrey Hesler; David Kurtz; Steven Retzlöff

Virginia Diodes, Inc., United States

11:30	Bridging The Terahertz-Gap Using High-Tc Superconducting Emitters With Coherent And Continuous Electromagnetic Wave (EMW) Radiation (Keynote Talk) 1277	F2C.3
	<u>Kazuo Kadowaki</u> ¹ ; Chiharu Watanabe ¹ ; Kurama Nakade ¹ ; Yoshihiko Saiwai ¹ ; Hiroyuki Kubo ¹ ; Kazuki Sakamoto ¹ ; Takanari Kashiwagi ¹ ; Takuya Katsuragawa ¹ ; Taiga Tanaka ¹ ; Takumi Yuasa ¹ ; Yuki Komori ¹ ; Manabu Tsujimoto ¹ ; Takanari Kashiwagi ¹ ; Hidetoshi Minami ¹ ; Takashi Yamamoto ² ; Richard Klemm ³ ¹ University of Tsukuba, Japan; ² Univ. of Ulm, Germany; ³ Univ. Central Florida, United States	
12:00	Developments Of The Pinned Photodiode Terahertz Rectifier 1280	F2C.4
	<u>Fabrizio Palma</u> ¹ ; Vohla Varlamava ¹ ; Giovanni De Amicis ² ; Andrea Del Monte ² ; Rosario Rao ¹ ¹ Università di Roma La sapienza, Italy; ² LFoundry, Italy	
12:15	5.2-THz Single-Mode Lasing In Current-Injection Distributed-Feedback Dual-Gate Graphene-Channel Field-Effect Transistor 1282	F2C.5
	Gen Tamamushi ¹ ; Takayuki Watanabe ¹ ; Alexander Dubinov ² ; Hiroyuki Wako ¹ ; Akira Satou ¹ ; Tetsuya Suemitsu ¹ ; Maxim Ryzhii ³ ; Victor Ryzhii ¹ ; <u>Taichi Otsuji</u> ¹ ¹ Tohoku University, Japan; ² Institute for Physics of Microstructures, RAS, Russian Federation; ³ University of Aizu, Japan	

11:00 - 12:30		Room 20
MMW and submillimeter wave systems III (F2D)		
Session Chair: Harish Krishnaswamy, Columbia University, USA		
11:00	Efficiency And Bandwidth Enhancement Of On-Chip Antennas By Using Connected Arrays And Artificial Dielectrics 1284	F2D.1
	<u>Daniele Cavallo</u> ; Waqas H. Syed; Andrea Neto Delft University of Technology, Netherlands	
11:15	300-GHz-band Wireless Transmission At 50 Gbit/s Over 100 Meters 1286	F2D.2
	<u>Tadao Nagatsuma</u> ¹ ; Kazuki Oogimoto ¹ ; Yu Yasuda ¹ ; Yusuke Fujita ¹ ; Yuki Inubushi ¹ ; Shintaro Hisatake ¹ ; Gonzalo Crespo ² ; Aitor Martinez ² ¹ Osaka University, Japan; ² Anteral, Spain	
11:30	Fast THz Modulator Based On The HEMT-metamaterial 1288	F2D.3
	Yuncheng Zhao ¹ ; <u>Yaxin Zhang</u> ¹ ; Shen Qiao ¹ ; Shixiong Liang ² ; Zhihong Feng ² ; Ziqiang Yang ¹ ¹ Terahertz Science Cooperative Innovation Center, University of Electronic Science and Technology of, China; ² National Key Laboratory of Application Specific Integrated Circuit, Hebei Semiconductor Research Ins, China	
11:45	THz Transmission Using QAM-16 And 32 Gbit/s On 25m 1290	F2D.4
	Philipp Latzel ¹ ; Fabio Pavanello ¹ ; Sara Bretin ¹ ; Pascal Szriftgiser ² ; Redha Kassi ¹ ; Klaus Engenhardt ³ ; Erwan Lecomte ⁴ ; Emilien Peytavit ¹ ; Jean-François Lampin ¹ ; Mohammed Zaknoute ¹ ; <u>Guillaume Ducournau</u> ⁵ ¹ IEMN - Univ Lille 1, France; ² PhLAM, France; ³ Tektronix, Germany; ⁴ Tektronix, France; ⁵ IEMN, France	

12:00 **Exploring THz Band For High Speed Wireless Communications (Keynote Talk) 1292** **F2D.5**
Xianbin Yu
 Zhejiang University, China

11:00 - 12:30		Free Electron Lasers and Synchrotron Radiation II (F2E)	Room 19
Session Chair: Gian Piero Gallerano, ENEA-Frascati, Italy			
11:00	Powerful FEM-oscillators With Advanced Bragg Resonators Operating In A Single Mode Regime From Ka- To W-band 1294	F2E.1	
<u>Nikolai Peskov</u> ¹ ; Naum Ginzburg ¹ ; Alim Kaminsky ² ; Elkuno Perelstein ² ; Sergei Sedykh ² ; Vladislav Zaslavsky ¹ ; Dmitry Padozhnikov ¹ ¹ Institute of Applied Physics RAS, Russian Federation; ² Joint Institute for Nuclear Research, Russian Federation			
11:15	Present Status Of CAEP THz FEL Facility 1296	F2E.2	
<u>Xiaojian Shu</u> ¹ ; Yuhuan Dou ¹ ; Xingfan Yang ² ; Ming Li ² ; Xiangyang Lu ³ ¹ Institute of Applied Physics and Computational Mathematics, China; ² Institute of Applied Electronics, CAEP, China; ³ Institute of Heavy Ion Physics, Peking University, China			
11:30	Powerful Broadband FEM-amplifier Operating Over Ka Frequency Range 1298	F2E.3	
<u>Ilya Bandurkin</u> ¹ ; Alim Kaminsky ² ; Sergey Kuzikov ¹ ; Elkuno Perelstein ² ; <u>Nikolai Peskov</u> ¹ ; Andrey Savilov ¹ ; Denis Donets ² ; Sergei Sedykh ² ¹ Institute of Applied Physics RAS, Russian Federation; ² Joint Institute for Nuclear Research, Russian Federation			
11:45	Testing Of RF Source And Microwave Components Of The Millimeter-Wavelength Flying RF Undulators 1300	F2E.4	
<u>Andrey Savilov</u> ; Eduard Abubakirov; Ilya Bandurkin; Yury Danilov; Andrey Denisenko; Sergey Kuzikov; Alexander Vikharev Institute of Applied Physics, Russian Federation			
12:00	Tuning A Synchrotron Radiation Source For Nano-FTIR Spectroscopy 1302	F2E.5	
<u>Bernd Kaestner</u> ¹ ; Peter Hermann ¹ ; Arne Hoehl ¹ ; Burkhard Beckhoff ¹ ; Gerhard Ulm ¹ ; Piotr Patoka ² ; Georg Ulrich ² ; Jörg Feikes ³ ; Markus Ries ³ ; Tobias Goetsch ³ ; Godehard Wüstefeld ³ ; Eckart Rühl ² ¹ Physikalisch-Technische Bundesanstalt, Germany; ² Freie Universität Berlin, Germany; ³ HZB Berlin, Germany			
12:15	Present Status And Future Plan Of Infrared FEL Facility At Kyoto Univ. 1304	F2E.6	
<u>Heishun Zen</u> ; Sikharin Suphakul; Toshiteru Kii; Kai Masuda; Hideaki Ohgaki Institute of Advanced Energy, Kyoto University, Japan			