

Conference Program

Sunday, September 14, 2008

4:00 - 6:30 pm Early Registraton & Reception Dabney Garden

Monday, September 15, 2008

7:30 - 8:30 am Registration & Coffee Dabney Garden

Welcoming Remarks and Announcements

Monday 8:30 - 9:00 am

Beckman Auditorium

Peter Siegel

Plenary Talks M1P

Chair: Peter Siegel

Monday 9:00 - 10:30 am

Beckman Auditorium

M1P1.1783 The Magic of Science

Michael Griffin

National Aeronautics and Space Administration, Washington, DC, USA

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M1P2.1780 Robotic Space and Earth Science 2020

Charles Elachi

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M1P3.1782 The National Science Foundation: Transforming Life at Disciplinary Boundaries

Kathie Olsen

National Science Foundation, Washington, DC, USA

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10:30 - 11:00 am Group Photo

Beckman Auditorium

10:30 - 11:00 am Coffee Break

Dabney Garden

Session M2A: Gyrotrons 1

Chair: Manfred Thumm

Monday 11:00 - 12:30 pm

Room 155 Arms

M2A1.1126 Generation of kW Level THz Radiation by the Gyrotron with Pulsed Magnetic Field [keynote]

Mikhail Yu. Glyavin, Alexey G. Luchinin

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Corresponding author: Mikhail Glyavin, glyavin@appl.sci-nnov.ru

M2A2.1154 Frequency-Quadrupling Gyrotrons

Gregory S. Nusinovich¹, Oleksandr V. Sinitsyn¹, Andrey V. Savilov², John Pasour³, Alexander N. Vlasov⁴, Baruch Levush³, Khan T. Nguyen⁵, Thomas M. Antonsen, Jr.¹

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M2A3.1267 THz Gyrotrons - FU CW Series for High Power THz Technologies

Toshitaka Idehara, Teruo Saito, Isamu Ogawa, Seitaro Mitsudo, Yoshinori Tatematsu
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M2A4.1449 Terahertz High-Harmonic Gyrotrons and Gyro-Multipliers **Ilya V. Bandurkin, Vladimir L. Bratman, Yuriy K. Kalynov, Vladimir N. Manuilov, Sergey V. Samsonov, Andrey V. Savilov**

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M2A5.1227 Demonstration of a THz Pulse Gyrotron

Michael E Read¹, Jeff Neilson¹, Gregory Nusinovich², Philipp Borchard³, Lawrence Ives¹

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Session M2B: Applications in Biology & Medicine 1 Chair: Gian Piero Gallerano

Monday 11:00 - 12:30 pm

Room 201 E.Bridge

M2B1.1204 The THz Dance of Protein with Water [keynote]

Martina Havenith¹, David Leitner², Martin Gruebele³

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M2B2.1457 Single Living Cell Analysis by THz BioMEMS

Anthony Treizebre¹, Bertrand Bocquet¹, Dominique Legrand², Joel Mazurier²

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M2B3.1277 Characterizing Rat Tissue Samples Using Terahertz Pulsed Imaging

Shengyang Huang¹, Yixiang Wang², David Kawai Yeung², Vincent P Wallace³, Yuanting Zhang⁴, Emma Pickwell-MacPherson¹

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M2B4.1397 Using Terahertz Pulsed Imaging (TPI) to Identify Colonic Pathology

George P Reese¹, Caroline Reid², Robert Goldin³, My-Anh Tran-Dang³, Anthony J Fitzgerald⁴, Paris Tekkis¹, Vincent P Wallace⁵

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M2B5.1117 Numerical and Experimental Approaches to Millimeter-Wave Dosimetry for in vitro Experiments

Maxim Zhadobov¹, Ronan Sauleau¹, Yves Le Dréan³, Stanislav I. Alekseev², Marvin C. Ziskin²

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Session M2G: Imaging 1

Chair: Henry van Driel

Monday 11:00 - 12:30 pm

Room 22 Gates

M2G1.1719 Terahertz Near-Field Measurements of Small Metal Structures [keynote]

Aurè J. Adam¹, Joseph R. Knab¹, Michael Nagel², Min A. Seo³, Dai S. Kim³, Paul C. Planken¹

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M2G2.1574 Nanoscale Infrared and THz Mapping of Conductivity

Fritz Keilmann, Rainer Hillenbrand

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M2G3.1680 On-Chip Near-Field THz Imaging Probe Integrated with a Detector

Yukio Kawano, Koji Ishibashi

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M2G4.1363 Sub-Wavelength Imaging of Terahertz Dielectric Permittivity Using Planar Resonant Circuits

Matthew B Byrne, John E Cunningham, Suraj P Khanna, Mark R Stringer, Christopher D Wood, Edmund H Linfield, Alexander G Davies

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M2G5.1491 Terahertz Wave Focusing at Localized Surface Plasmon Resonance

M. A. Seo¹, A. J. L. Adam², J. H. Kang³, K. J. Ahn¹, J. W. Lee¹, Q. H. Park³, P. C. M. Planken², D. S. Kim¹

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Session M2K: Sources 1

Chair: Antti Raisanen

Monday 11:00 - 12:30 pm

Room 119 Kerchoff

M2K1.1731 Graphene Terahertz Sources and Amplifiers [keynote]

Farhan Rana, Paul A George, Jared H Strait, Jahan Dawlaty

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M2K2.1668 Milliwatt THz Average Output Power from a Photoconductive Switch

Elliott R. Brown¹

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M2K3.1195 Highly Efficient Terahertz Generation via a Continuously Phase Matched Difference Frequency Generation in a Nested Waveguide Structure

Leon McCaughan¹, Chad Staus¹, Thomas F. Kuech²

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M2K4.1337 Micro Lens Coupled Large Area Photoconductive Switch for Powerful THz Emission

Gabor Matthäus¹, Ricoh Hohmuth², Martin Voitsch², Wolfgang Richter², Stefan Riehemann³, Gunther Notni³, Stefan Nolte¹, Andreas Tünnermann³

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M2K5.1259 Terahertz Planar Varactor Sideband Generator Array

Haiyong Xu¹, Zhiyang Liu², Lei Liu¹, Jeffrey L. Hesler³, Robert M. Weikle¹

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12:30 - 1:30 pm	Lunch Break By-Laws luncheon	Dabney Garden Library Room, Athenaeum (by invitation)
1:00 - 5:00 pm	Guest Program	Huntington Library & Garden

Session M3A: Radar and Communications

Chair: Bruce Danly

Monday 2:00 - 3:30 pm

Room 155 Arms

M3A1.1451 10-Gbit/s Wireless Link Using 120-GHz-Band MMIC Technologies [keynote]

Naoya Kukutsu¹, Akihiko Hirata¹, Toshihiko Kosugi², Hiroyuki Takahashi¹, Ryo-ichi Yamaguchi¹, Tadao Nagatsuma³, Yuichi Kado¹

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M3A2.1369 A High Performance 220-GHz Broadband Experimental Radar **Helmut Essen¹, Stefan Stanko¹, Rainer Sommer¹, Alfred Wahlen¹, Ralf Brauns¹, Jörn Wilcke¹, Winfried Johannes¹, Axel Tessmann², Michael Schlechtweg²**

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M3A3.1342 300 GHz Channel Measurement and Transmission System **Christian Jastrow¹, Klaus Münster¹, Radoslaw Piesiewicz², Thomas Kürner³, Martin Koch⁴, Thomas Kleine-Ostmann¹**

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M3A4.1220 A G-Band Multi-Chip MMIC T/R Module for Radar Applications **Lorene A Samoska, David M Pukala, Mary Soria, Gregory Sadowy**

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M3A5.1298 Real-time, Terahertz Impulse Radar Based on Asynchronous Optical Sampling

Takeshi Yasui, Yasuhiro Kabetani, Shuko Yokoyama, Tsutomu Araki

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Session M3B: Spectroscopy & Instrumentation: Systems Chair: Brian Drouin

Monday 2:00 - 3:30 pm

Room 201 E. Bridge

M3B1.1518 Progress Towards a 2.5-THz Solid State Heterodyne Receiver with Quantum Cascade Laser and Hot Electron Bolometric Mixer [keynote]

Heinz-Wilhelm Hübers¹, Heiko Richter¹, Alexei D.Semenov¹, Sergey G. Pavlov¹, Lukas Mahler², Alessandro Tredicucci², Harvey E. Beere³, David A. Ritchie³, Kosteal Il'in⁴, Michael Siegel⁴

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M3B2.1748 Spectroscopic Detection, Fundamental Limits and System Considerations

John C Pearson, Ken B Cooper, Brian J Drouin

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M3B3.1193 Single Channel- and Real-Time Imaging Attenuated Total Reflection Spectrometers for THz Range

Boris A Knyazev¹, Valery S Cherkassky², Nikolay GGavrilov¹, Vasily V Gerasimov², Alexander M Gonchar³

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M3B4.1743 Double Effective Band-Pass Submm-Filters Based on Anisotropic Resonant Meshes

Sergey A Kuznetsov¹, Yury G Goncharov², Boris PGorshunov², Igor E Spektor², Alexandr V Gelfand³, Nina I Fedorinina³

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M3B5.1197 Coherent Anti-Stokes Raman Scattering Spectroscopy in Terahertz Region Using Chirped Optical Pulses

Masahiko Tani¹, Toshiyuki Koizumi², Hisashi Sumikura³, Mariko Yamaguchi², Masanori Hangyo²

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Session M3G: Imaging 2

Chair: Mischa Bonn

Monday 2:00 - 3:30 pm

Room 22 Gates

M3G1.1513 Fast Active THz Camera with Range Detection by Frequency Modulation [keynote]

Christian am Weg¹, Wolff von Spiegel¹, Bernd Hils¹, Torsten Löffler¹, Ralf Henneberger², Ralph Zimmermann², Hartmut Roskos¹

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M3G2.1299 Confocal THz Imaging Using a Gas Laser

Mohammed A. Salhi, Martin Koch

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M3G3.1464 Nanoparticle Contrast Agents for Terahertz Medical Imaging

Seung Jae Oh¹, Inhee Maeng², Hee Jun Shin², Jaewon Lee³, Jinyoung Kang³, Seunjo Haam³, Yong-Min Huh⁴, Jin-suck Suh⁴, Joo-Hiuk Son²

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M3G4.1681 Terahertz Imaging with a Two-dimensional Array Detector Based on Superconducting Tunnel Junctions

Seiichiro Ariyoshi¹, Chiko Otani¹, Adrian Dobroiu¹, Hiromi Sato², Tohru Taino³, Hiroshi Matsuo⁴, Hirohiko M. Shimizu⁵

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M3G5.1585 Three-Dimensional Interferometric Imaging at Terahertz Frequencies Using Three-Dimensional Spiral Array

Alex I. Goltsman¹, Amir I. Zaghloul¹

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Session M3K: Detectors 1

Chair: Bob Miles

Monday 2:00 - 3:30 pm

Room 119 Kerckhoff

M3K1.1646 Terahertz Resonances and Bolometric Response of a Single-Walled Carbon Nanotube [keynote]

Daniel F Santavicca, Daniel E Prober

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M3K2.1600 The Response Rate of Room Temperature Terahertz InGaAs-based Bow-Tie Detector with Broken Symmetry

Irmantas Kasalynas¹, Dalius Seliuta¹, Rimantas Simniskis¹, Vincas Tamosiunas¹, Viktoras Vaicikauskas², Ignas Grigelionis¹, Ramunas Nedzinskas¹, Klaus Kohler³, Gintaras Valusis¹

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M3K3.1618 Long Wave Infrared Detection Using Dipole Antenna-Coupled Metal-Oxide-Metal Diodes

Jeffrey A Bean, Badri N Tiwari, Gergo Szakmány, Gary H Bernstein, Patrick Fay, Wolfgang Porod

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M3K4.1676 The Development of Quasi-Optical THz Detectors

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M3K5.1148 Room Temperature Terahertz Detection Based on Plasma Resonance of Electrons in an Antenna-Coupled GaAs MESFET

Sangwoo Kim¹, Jeremy D. Zimmerman², Paolo Focardi³, Arthur C. Gossard², Dong Ho Wu⁴, Mark S. Sherwin¹

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3:30 - 4:00 pm

Coffee Break

Bechtel Mall

Session M4A: Novel Devices and Applications 1**Chair: Jean Leotin****Monday 4:00 - 5:30 pm****Room 155 Arms****M4A1.1421** Micro-fabricated High-impedance Surface for Millimeter Wave Beam Steering Applications [keynote]**Dmitry V. Chicherin¹, Sergey Dudorov¹, Mikael Sterner², Joachim Oberhammer², Antti V. Raisanen¹**¹TKK - Helsinki University of Technology, Espoo, Finland²KTH - Royal Institute of Technology, Stockholm, Sweden

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M4A2.1511 Terahertz Beam Steering and Frequency Tuning by Using Difference Frequency Mixing**Ken-ichiro Maki¹, Takayuki Shibuya², Chiko Otani¹, Kodo Kawase²**¹Terahertz Sensing and Imaging Laboratory, RIKEN, Sendai, Japan²EcoTopia Science Institute, Nagoya University, Nagoya, Japan

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M4A3.1372 Investigation of THz Thermal Emission from Electromagnetic Crystals**Hao Xin, Ziran Wu, Richard W Ziolkowski**

University of Arizona, Tucson, USA

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M4A4.1364 Imaging Fourier Transform Spectroscopy Using an Un-cooled Microbolometer Array**G. V. Sudhakar Rao, Peter Davis, Brad Gom**

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M4A5.1617 SU-8 Micromachining process for Millimeter and Submillimeter-wave Waveguide Circuit Fabrication**Charlie H Smith,III, N Scott Barker**

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Session M4B: Materials: Semiconductors & Superconductors**Chair: Heinz-Wilhelm Hübers****Monday 4:00 - 5:30 pm****Room 201 E.Bridge****M4B1.1136** Spectroscopy of THz Radiation Induced by Impact Ionization of Shallow Acceptors in Ge**Alexander V Andrianov, Alexey O Zakharin, Nikolay N Zinovev**

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M4B2.1458 Terahertz Vibrational Absorption Resonances Observed Using On-chip Terahertz Circuits

Matthew B Byrne, John E Cunningham, Suraj P Khanna, Andrew D Burnett, Katarzyna Tych, Mark R Stringer, Edmund H Linfield, Alexander G Davies

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M4B3.1560 Generation of High Stable Wide-Range THz Radiation for Precise Frequency Measurements

Vladimir L Vaks¹, Alexander N Panin¹, Dmitry GPaveliev², Yuriy I Koshurinov²

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M4B4.1744 High-Resolution THz Transmission and Birefringence Measurements in Ferroelectric LiNbO₃

Elliott R Brown¹, Joseph R Demers², Ronald T Logan, Jr.², K K Wong²

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M4B5.1582 Using Terahertz Time-Domain-Spectroscopy to Follow the Kinetics and Mechanism of Cocrystal Formation

Edward P. J. Parrott¹, Axel Zeitler¹, Tomislav Friscic³, Graeme M. Day³, Michael Pepper², William Jones³, Lynn F. Gladden¹

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Session M4G: Ultrafast Chemistry and Physic

Chair: Martin Koch

Monday 4:00 - 5:30 pm

Room 22 Gates

M4G1.1260 Ultrafast Intraband Relaxation in Colloidal Quantum Dots [keynote]

Mischa Bonn¹, Euan Hendry², Joep JH Pijpers¹

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M4G2.1420 Ultrafast Electron Relaxation Dynamics In Laser-Ionized Gases Observed with Time-Resolved THz Spectroscopy

Christian Frischkorn¹, Tobias Kampfrath¹, Luca Perfetti¹, Petra Tegeder¹, Martin Wolf¹, Dirk O. Gericke²

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M4G3.1160 Narrow-Band Terahertz Pulses Generated by Difference-Frequency Mixing of CO₂ Laser Lines

Sergei Tochitsky, Chieh Sung, Chan Joshi

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M4G4.1654 Dielectric Response Of Suspended Nucleotides At Terahertz Frequencies

Paul M Glancy, Ward P Beyermann

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M4G5.1742 Using Coplanar Wave Guides To Excite Molecular Motions In The Frequency Range Of 10-1000 GHz

Klaus Attenkofer¹, Nalaka Kodituwakku¹, Steve Kross¹, Thomas Nielsen², Martin M Nielsen², David M Tiede¹, Michael Goerlich¹, Bernhard Adams¹

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Session M4K: Photomixers

Chair: Aurele Adam

Monday 4:00 - 5:30 pm

Room 119 Kerckhoff

M4K1.1721 THz Emission from Transient Electrical Currents Injected into Semiconductors via Optical Quantum Interference [keynote]

Markus M Betz, Jean-Michel Ménard, Louis Costa, Marko Spasenovic, Christian Sames, Alan D Bristow, Henry M van Driel

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M4K2.1199 High-power and Broadband Sub-terahertz Wave Generation Using a J-band Photomixer Module with Rectangular-waveguide Output Port

Atsushi Wakatsuki¹, Tomofumi Furuta¹, Yoshifumi Muramoto¹, Toshihide Yoshimatsu², Hiroshi Ito³

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M4K3.1580 Integrated Horn Antenna for Terahertz Photomixing in LTG-GaAs

Emilien F Peytavit¹, Jean F Lampin¹, Tahsin Akalin¹, Francis Mollot¹, Francis Hindle², Chun Yang², Gael Mouret²

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M4K4.1452 CW Generation up to 2 THz by Ion-Irradiated InGaAs Photomixer Driven at 1.55 μm Wavelengths

Juliette Mangeney¹, P. Crozat¹, A. Merigault¹, K. Blary², J.F. Lampin²

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M4K5.1383 THz Source Based on Resonantly-Enhanced Difference Frequency Generation in Periodically-Inverted GaAs

Konstantin L Vodopyanov¹, Joe E Schaar¹, Paulina SKuo¹, Martin M Fejer¹, Anjie Lin¹, James S Harris¹, Walter C Hurlbut², Vlad G Kozlov², David Bliss³, Candace Lynch³

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Poster Session M5D

Monday 5:30 - 7:00 pm

Dabney Garden

M5D1.1326 FEL THz Irradiation Approach for the Biochip Production Standardization

Sergey E Peltek¹, Tatiana N Goryachkovskaya¹, Viatcheslav AMordvinov¹, Vasily M Popik², Mikhail A Scheglov², Alexander S Kozlov³, Sergey B Malyshkin³, Alexander K Petrov³

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M5D2.1514 Terahertz Imaging of Paraffin-embedded Epithelial Cell of Rat using Pulsed and CW THz Systems

O Kwon¹, Y.D. Joo¹, H.J. Choi², D.S. Kim¹, Y.H. Kim¹, J.I. Kim³, S.G. Jeon³, Y.S. Jin³, G.S. Park¹

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M5D3.1665 Measurement and Application of Incoherent Terahertz Scattering Using Time-Domain Spectroscopy

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M5D4.1629 Electrically Active Defects and Dielectric Loss in Silicon Carbide**J. M. Dutta¹, C. R. Jones², V. V. Parshin², B. Garin³, V. I. Polyakov³, A. Rukovishnikov³**¹North Carolina Central University, Durham, USA²Applied Physics Institute, RAS, Nizhny Novgorod, Russia³Institute of Radio Engineering & Electronics, RAS, Moscow, Russia

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M5D5.1239 Terahertz Time Domain Spectroscopy of Petroleum Products and Organic Solvents**Geun-Ju Kim, Seok-Gy Jeon, Jung-Il Kim, Yun-Sik Jin**

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M5D6.1351 Permittivity of Highly Absorbing Oxide Ceramics in Millimeter Waves**Mohammed N Afsar¹, King Wang², Peter Liu², Konstantin A Korolev¹**¹Tufts University, Medford, USA²AGILTRON Incorporated, Woburn, 01801³Extremely High Frequency Medical & Technical Assoc., Moscow, Russian Federation

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M5D7.1129 Dispersion and Attenuation Characteristics of Suspended Microstrip Line on Multilayer Lossy Silicon Substrate at 60 GHz**Manish P Prasad, Arun S Gaur, Vivek K Sharma, Nagendra P Pathak**

Indian Institute of Technology, Roorkee, Haridwar, India

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M5D8.1554 Effect of Stochastic Fields on Spectrum of Two-level Quantum Systems**Ekaterina A Sobakinskaya, Andrey L Pankratov, Vladimir L Vaks**

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M5D9.1660 Sub-THz Wave Magnetic Resonance Force Microscopy with a Gyrotron**Mitsuru Toda¹, Seitaro Mitsudo¹, Yutaka Fujii¹, Tomohiro Kanemaki¹, Isamu Ogawa¹, Toshitaka Idehara¹, Teruo Saito¹, Yong J Lee², John T Markert²**¹Research Center for Development of Far-Infrared Region, Univ. of Fukui, Fukui, Japan²Department of Physics, University of Texas at Austin, Austin, USA

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M5D10.1158 Terahertz Spectrum & Ionic Polarizability of PbB4O7 Crystal**Bingxin Yang¹, Bihui Hou², Yicheng Wu³, Wang Li⁴, Pengzhen Fu⁵**¹Graduate University of Chinese Academy of Science, Beijing, China²Beijing University of Technology, Beijing, China³Technical Inst. of Physics and Chemistry, Chinese Academy of Sciences, Beijing, China⁴Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Beijing, China

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M5D11.1321 Inspection of Glass-Fiber Reinforced Composites with a Continuous Wave THz Imaging System

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M5D12.1438 Room Temperature Generation of Terahertz Radiation from Dual Grating Gate HEMT's

Yahya M Meziani¹, Takuya Nishimura¹, Hiroyuki Handa¹, Wojciech Knap¹, Taiichi Otsuj¹, Eiichi Sano², Vyacheslav V Popov³, Dominique Coquillat⁴, Frederic Teppe⁴

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M5D13.1492 A Novel Design of Focal Plane Array in PMMW Imaging System

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M5D14.1516 THECAMAP: Terahertz Camera for Medical Applications

Benedetta Mencagli¹, Gianpiero Scarscia¹, Sara Cibella², Michele Ortolani², Guido Torrioli², Roberto Leoni², Alessandro Tredicucci³, Maria Agnese Della Fazia⁴, Giuseppe Servillo⁴, Maurizio Grego⁴

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M5D15.1130 THz Characterization of Lossy Materials Using Multi-Layers Measuring Cell

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M5D16.1264 Influences of Real-World Conditions on Terahertz Stand-Off Detection: Simulation and Experiment

Sabine Wohnsiedler¹, Michael Theuer¹, Michael Herrmann¹, Shany Islam¹, Joachim Jonuscheit¹, René Beigang¹, Frank Hase²

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M5D17.1677 Tailored Focal Length Of The Sub-Wavelength Slit-Groove-Based Metamaterials In THz Regime**Kwangchil Lee, Kyoungsik Kim***Yonsei University, Seoul, South Korea*

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M5D18.1263 Study of Terahertz Emission from Bulk Ga[x]In[1-x]As Crystals Photoexcited by Femtosecond Laser Pulses**Youngok Ko, Suranjana Sengupta, Partha Dutta, Stephanie Tomasulo, Ingrid Wilke***Rensselaer Polytechnic Institute, Troy, USA*

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M5D19.1179 Electron Dynamics in the Process of Mode Switching in Gyrotrons**O. Dumbrajs¹, Y. Kominis², G.S. Nusinovich³**¹*Helsinki University of Technology, Helsinki, Finland*²*National Technical University of Athens, Athens, Greece*³*University of Maryland, USA*

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M5D20.1706 Low-loss Porous Silicon Substrates for Microwave and Millimeter Applications**F Guo, L Zhang, Z Sun, Z Zhu, J Chu***College of Information Sciences and Technology, East China Normal Univ, Shanghai, China*

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M5D21.1128 Theoretical Investigation into Cerenkov Radiation in an Anisotropic Double-Negative Medium**Zhaoyun Duan¹, Yubin Gong¹, Yanyu Wei¹, Wangxiang Wang¹, Bae-lan Wu², Jin Au Kong², Min Chen³**¹*Vacuum Electronics National Laboratory, School of Physical Electronics, University of Electronic Science and Technology of China, Chengdu, China*²*Research Lab. of Electronics, Massachusetts Institute of Technology, Cambridge, USA*³*Department of Physics, Massachusetts Institute of Technology, Cambridge, USA*

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M5D22.1399 Closed-Form Dispersion Models of Slot-Line with Conductor Thickness**Payal Majumdar, Anand K. Verma***Department of Electronic Science, Univ. of Delhi, South Campus, New Delhi, India*

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M5D23.1537 A Modified Objective Discrimination Model for Triangle Orientation Discrimination Threshold Measurements**Guojing He, Jianqi Zhang, Shuang Zhang, Xiaorui Wang***Xidian University, Xi'an, China*

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M5D24.1406 Nano-Antenna for Optical Resolution Using Plasmonic Material as Substrate

Ghanshyam Singh, Ratish K. Dhiman, Rakesh K. Tiwari, Pradeep Kumar, D S. Chauhan

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M5D25.1569 Generation of Terahertz Radiation by the Large-Aperture Photoconductive Antenna

Valeriy N Truchin, Aleksandr V Andrianov, Nickolay N Zinovev

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M5D26.1308 Design of Gyrotron FU CW V for Accurate Measurement of Positronium Energy Level

La Agusu¹, Toshitaka Idehara¹, Isamu Ogawa¹, Teruo Saito¹, T. Namba², H. Saito², Shoji Asai², Tomio Kobayashi², M. Glyavin³

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M5D27.1448 Design and Test of New Millimeter Wave Notch Filter for Plasma Diagnostics

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M5D28.1228 Gyrotron Efficiency Reductions Due to After-Cavity Interactions

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M5D29.1200 Preliminary Design of a Stable, Second Harmonic, 1MW, Ku-Band Gyro-TWA

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M5D30.1254 RF Cavity Simulation of 0.3THz 400W Gyrotron Oscillator

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M5D31.1703 94GHz Second-Harmonic Gyrotron with Complex Cavity
Xinjian NIU, Sheng YU, Hongfu LI

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M5D32.1209 Development of a Sub Terahertz High Power Pulse Gyrotron for Collective Thomson Scattering

Teruo Saito¹, Takashi Notake¹, Yoshinori Tatematsu¹, Akihito Fujii¹, La Agusu¹, Isamu Ogawa¹, Toshitaka Idehara¹, Vladimir N. Manuilov²

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M5D33.1281 Feasibility Study of Collective Thomson Scattering in LHD Plasma Using a 400 GHz Frequency Gyrotron

Yoshinori Tatematsu¹, Teruo Saito¹, Takashi Notake¹, Shin Kubo², Takashi Shimozuma², Kenji Tanaka², Masaki Nishiura²

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M5D34.1407 Terahertz Vector Beams

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M5D35.1166 Self-Fields and Their Effects on Electron Orbits in a Three-Dimensional Helical Wiggler Free-Electron Laser

Mahdi Esmaeilzadeh¹, Vahid Ghafouri²

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M5D36.1570 THz Performance of the Infrared Beamline at BESSY

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M5D37.1551 Terahertz Band Bragg Reflectors

Naum S Ginzburg, Andrey M. Malkin, Nikolay Yu. Peskov, Alexander S. Sergeev, Vladislav Yu. Zaslavsky

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M5D38.1391 Design of a Multi-Kilowatt, 600 GHz, Second-Harmonic Gyrotron

Arne W. Fliflet, Melissa K. Hornstein, Steven H. Gold

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M5D39.1542 Helically Corrugated Waveguides for Compression of Microwave Pulses

Michael McStravick¹, Sergey V Samsonov², Adrian WCross¹, Gregory G Denisov², Wenlong He¹, Philip MacInnes¹, Alan DR Phelps¹, Vladimir L Bratman², Kevin R Ronald¹, Ivan V Konoplev¹, S Mishakin², Colin G Whyte¹, Alan R Young¹, Graeme Burt¹

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M5D40.1127 Modern Techniques of Terahertz-Subterahertz Spectroscopy of Solids

Boris P. Gorshunov, Alexander A. Volkov, Igor E. Spektor, Anatoly S. Prokhorov

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M5D41.1641 Implementation of Computer Optimization for Design of Electron Guns

Lawrence L Ives¹, Thuc Bui¹, Adam Attarian², Hien Tran², Michael Read¹, Mattie Posth³, Steven Davis², Sean Gadson², William Tallis²

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M5D42.1576 Modelling the Effect of Hydrogen Positions on the Lattice Dynamics Calculations of Terahertz Spectra of Benzoic Acid

Ruoyu Li¹, Graeme M. Day², Edward P.J.Parrott¹, J. Axel Zeitler³, Lynn F. Gladden³

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M5D43.1214 Heavy-Ion Irradiated GaAs Crystals for High-Efficient Generation of Terahertz Radiation

Maxim M. Nazarov¹, Andrey V. Shepelev², Alexander P.Shkurinov¹, Vladimir A. Skuratov³

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M5D44.1701 Effective Surface Plasmon Mediated Sub-millimeter Smith-Purcell FEL

J.K. So, M.A. Sattarov, K.H. Jang, J.H. Won, A. Srivastava, G.S. Park

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M5D45.1454 Simulation About the Semiconductor Double Wavelength External Cavity Laser for the Generation of Tunable Terahertz Waves with Compact Structure

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M5D46.1674 Fine Tuning of Terahertz Generation in Fan-out Type Periodically Poled Lithium Niobate Using Femtosecond Laser Pulses
Chul Kang, Chulsik Kee, YeungLak Yee, Hyounggeun Yu, NanEi Yu, Changsoo Jung, Do-Kyeong Ko, Jongmin Lee

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M5D47.1426 Terahertz Radiation from Target Materials Irradiated by an Ultra-intense Laser Pulse

Kitae Lee, Jungho Mun, Yong Woo Lee, Yong Ho Cha, Pil Dong Ahn, Seong Hee Park, Kwon-hae Yea, Byung Cheol Lee, Young Uk Jeong

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M5D48.1656 Ultrasensitive TES Detectors for FIR Space Astronomy
Dmitry Morozov¹, Philip D Mausekopf¹, Peter Ade¹, Dorota M. Glowacka², David Goldie², Stafford Withington², Marcel Bruijn³, Pieter A. J. de Korte³, Henk Hoevers³, Marcel Ridder³, Jian-Rong Gao⁴, Wolfgang Wild⁵

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M5D49.1768 Machining of Terahertz Split-Block Waveguides with Micrometer Precision

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Tuesday, September 16, 2008

7:45 - 8:45 am

Registration & Coffee

Dabney Garden

Announcements

Tuesday 8:45 - 9:00 am

Beckman Auditorium

Plenary Talks T1P

Chair: Koji Mizuno

Tuesday 9:00 - 10:30 am

Beckman Auditorium

T1P1.1119 The Role of Engineering Principles in the Medical Utilization of Electromagnetic Energies: Examples

Arye Rosen¹, Harel D Rosen²

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T1P2.1118 Hubbert's Peak, The Coal Question, and Climate Change

David Rutledge

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10:30 - 11:00 am

Coffee Break

Dabney Garden

Session T2A: Gyrotrons 2

Chair: Gregory Nusinovich

Tuesday 11:00 - 12:30 pm

Room 155 Arms

T2A1.1468 Multi-Frequency Gyrotrons for Plasma Fusion Installations [keynote]

Gregory G Denisov¹, Alexander G Litvak¹, Marina VAgapova², Vadim E Myasnikov², Evgeny M Tai², Vladimir E Zapevalov¹, Alexey V Chirkov¹, Andrey N Kuftin¹, Sergey A Malygin², Vladimir I Malygin¹, Vadim O Nichporenko², Igor V Kazansky², Alexandr V Kruglov², Vera G Rukavishnikova², Alexandr F Gnedenkov²

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T2A2.1608 Recent Test Results on a 95 GHz, 2 MW Gyrotron

Kevin L Felch, Monica Blank, Philipp Borchard, Patrick Cahalan, Steve Cauffman, Howard R Jory

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T2A3.1288 Progress with the New Multi-Frequency ECRH System for ASDEX Upgrade

Dietmar Wagner¹, Thomas Franke¹, Fritz Leuterer¹, Francesco Monaco¹, Max

Münich¹, Harald Schütz¹, Jörg Stober¹, Hartmut Zohm¹, Manfred Thumm², Roland Heidinger³, Andreas Meier³, Gerd Gantenbein², Jens Flamm², Walter Kasperek⁴, Carsten Lechte⁴

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T2A4.1545 Effects of After Cavity Interaction in a 1.5 MW, 110 GHz Gyrotron with a Depressed Collector

Yoshiteru Hidaka, E. M. Choi, I. Mastovsky, M. A. Shapiro, J. R. Sirigiri, R. J. Temkin
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T2A5.1359 Progress on Design and Testing of ITER ECH&CD Transmission Line Components

R.A. Olstad¹, R.W. Callis¹, J.L. Doane¹, H.J. Grunloh¹, K. Kajiwara², A. Kasugai², C.P. Moeller¹, C.J. Murphy¹, Y. Oda², K. Sakamoto², K. Takahashi²

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Session T2B: Applications in Biology and Medicine 2

Chair: Liu Shenggang

Tuesday 11:00 - 12:30 pm

Room 201 E. Bridge

T2B1.1508 The Role of Structure in the Protein Dynamical Transition [keynote]

Yunfen He, Andrea G Markelz

University at Buffalo, SUNY, Buffalo, USA

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T2B2.1595 Dielectric Measurement of Small Volume Liquid Samples using Dielectric Image Guide in mm-Wave Range

Mohammad Neshat¹, Huanyu Chen¹, Suren Gigoyan², Daryoosh Saeedkia¹, Safieddin Safavi-Naeini¹

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T2B3.1230 Redox Reactions of Enzymes Measured by Terahertz Chemical Microscope

Toshihiko Kiwa¹, Jyunichi Kondo¹, Iwao Kawayama², Masayoshi Tonouchi², Keiji Tsukada¹

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T2B4.1424 Terahertz Dynamics of Electrolytes in Aqueous Biological Media

Seung Jae Oh¹, Inhee Maeng², Hyeoung Mun Kim², Joonggun Chong², Dong Kyu Lee², Ocki Yoo³, Dong-Hee Lee³, Yong-Min Huh⁴, Jin-Suck Suh⁴, Joo-Hiuk Son²

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T2B5.1198 A Pilot Study of Terahertz Pulsed Imaging of Osteoarthritis

Kanis W.C. Kan¹, Emma Pickwell-MacPherson¹, Wing-Sze Lee², Wing-Hoi Cheung²

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Session T2G: Imaging 3

Chair: Haewook Han

Tuesday 11:00 - 12:30 pm

Room 22 Gates

T2G1.1178 Terahertz Imaging for Analysis of Historic Paintings and Manuscripts [keynote]

Kaori Fukunaga¹, Yuichi Ogawa², Shin'ichiro Hayashi³, Iwao Hosako¹

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T2G2.1628 THz-ARTE: Non-Invasive Terahertz Diagnostics for Art Conservation

Gian Piero Gallerano¹, Andrea Doria¹, Emilio Giovenale¹, Giovanni Messina¹,

Alberto Petralia¹, Ivan Spassovsky¹, Kaori Fukunaga², Iwao Hosako²

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T2G3.1360 Room Temperature Terahertz Imaging by a GaAs-HEMT Transistor Associated with a THz Time Domain Spectrometer

A. El Fatimy¹, E. Abraham¹, E. Nguema Agnandji¹, P. Mounaix¹, F. Teppe², W. Knap³, T. Otsuji³

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T2G4.1529 Development of a Hybrid THz Camera Using Synchronized Two-Color Laser Radiation

Fabian Friederich¹, Fanzhen Meng¹, Torsten Löffler¹, Klaus P Dickel², Gunnar Spickermann², Anselm Deninger³, Axel Roggenbuck³, Frank Lison³, Ralf Henneberger⁴, Ralph Zimmermann⁴, Peter H Bolívar², Hartmut G Roskos¹

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T2G5.1745 Microscopic Structure Imaging with Phase Analysis at 60GHz Band

Toshitatsu Suzuki, Somboon Theerawisitpong, Tadahiro Negishi, Yasuo Watanabe, Noboru Morita

Nippon Institute of Technology, Minamisaitamagun, Japan

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Session T2K: Materials Characterization & Manufacturing

Chair: Ken Wood

Tuesday 11:00 - 12:30 pm

Room 119 Kerckhoff

T2K1.1602 Rapid Time Domain Terahertz Axial Computed Tomography for Aerospace Non-Destructive Evaluation [keynote]

David A Zimdars, Greg Fichter, Artur Chernovsky

Picometrix, LLC., Ann Arbor, USA

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T2K2.1483 THz Spectroscopy for the Inline Control of Polymeric Compounding Processes

Norman Krumbholz¹, Thomas Hochrein², Nico Vieweg¹, Tomasz Hasek¹, Karsten Kretschmer², Martin Bastian², Martin Koch¹

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²SKZ - Sueddeutsches Kunststoff-Zentrum, Wuerzburg, Germany

Corresponding author: Norman Krumbholz, norman.krumbholz@ihf.tu-bs.de

T2K3.1362 Low Cost Thermopile Detectors for THz Imaging and Sensing

Francesco Voltolina¹, Alessandro Tredicucci², Peter Haring Bolivar¹

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T2K4.1622 Nondestructive Evaluation of Aircraft Composites Using Terahertz Time Domain Spectroscopy

Christopher D Stoik¹, Matthew J Bohn¹, James LBlackshire²

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T2K5.1368 Toolroom CAD Technologies Applied to the Manufacture of QO Systems

Richard J Wylde, Trevor J Walker, Stuart T Froud

Thomas Kreating Ltd, Billingshurst, UK

Corresponding author: Richard J Wylde, r.wylde@terahertz.co.uk

12:30 - 1:30 pm

Lunch Break

IOC Luncheon

Dabney Garden

Library Room, Athenaeum

(by invitation)

1:00 - 5:00 pm

Guest Program

Griffith Observatory

Session T3A: Electron Sources

Chair: Neville Luhmann

Tuesday 2:00 - 3:30 pm

Room 155 Arms

T3A1.1713 Operation of a Compact, 0.65 THz Source [keynote]

Kenneth E. Kreischer¹, John C. Tucek¹, David A. Gallagher¹, Robert E. Mihailovich²

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²Teledyne Scientific and Imaging, Thousand Oaks, USA

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T3A2.1764 Vacuum Microelectronics Applications Using Carbon Nanotube Cathodes

Harish Manohara, Risaku M Toda, Robert H Lin, Anna Liao, Robert Kowalczyk, Mohammad M Mojarradi, Anupama B Kaul

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T3A3.1683 Comparative Analysis on DRIE and LIGA Fabrications for Millimeter-Wave Backward-Wave Oscillators

Chan-Wook Baik¹, Jin-Kyu So², Matlabjon Abdurakhimovich Sattorov², Anurag Srivastava², Kyu-Ha Jang², Jong Hyo Won², Young Mok Son¹, Sun Il Kim¹, Jong-Min Kim¹, Jong-Hyun Kim³, Suk-Sang Chang³, Gun-Sik Park²

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T3A4.1638 Advanced Cathode Research

Lawrence L Ives¹, Lou Falce², George Miram¹, Marc Curtis³, Kim Gunther³, Steve Schwartzkopf⁴

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T3A5.1340 650 GHz Traveling Wave Tube Amplifier
Carol L Kory¹, Michael Read¹, John Booske², Lawrence Ives¹, Giri Venkataraman², David Marsden¹, Sean Sengele²

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Session T3B: Spectroscopy & Instrumentation: Time Domain Chair: Martina Havenith

Tuesday 2:00 - 3:30 pm

Room 201 E. Bridge

T3B1.1253 Quasi-Near Field Terahertz Time Domain Spectroscopy
Reshmi Chakkittakandy, Paul C. M. Planken

Delft University of Technology, Delft, The Netherlands

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T3B2.1384 Ultrabroadband THz Wave Detection Using Photoconductive Antenna

Masaaki Ashida¹, Ryota Akai¹, Hiroshi Shimosato¹, Ikufumi Katayama², Katsuhiko Miyamoto³, Hiromasa Ito³

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T3B3.1245 Linearity of Terahertz Time-Domain Spectrometers

Mira A Naftaly¹, Mark Stringer², Richard A Dudley¹

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T3B4.1575 Terahertz Time-Domain Spectroscopy with Continuous Coverage of the Entire Terahertz Range

Nicholas E Karpowicz, Jianming Dai, X.-C. Zhang

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T3B5.1688 Terahertz Spectroscopy of Protein in Water

Hiroshi Murakami¹, Takaki Nishi¹, Yuji Toyota¹, Shigeki Nashima²

¹Japan Atomic Energy Agency, Kizugawa-shi, Japan

²Osaka City University, Osaka city, Japan

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Session T3G: Imaging 4 and Analysis

Chair: Bruce Wallace

Tuesday 2:00 - 3:30 pm

Room 22 Gates

T3G1.1478 Leaky Lens Based UWB Focal Plane Arrays for Sub-mm Wave Imaging Based on Kinetic Inductance Detectors [keynote]

Andrea Neto

TNO, Den Haag, The Netherlands

Corresponding author: Andrea Neto, andrea.neto@tno.nl

T3G2.1465 Near-Field THz Imaging and Characterization of an Array of Sub-Wavelength Circular Apertures

Joseph R. Knab¹, Aurele J.L. Adam¹, Michael Nagel², Min Ah Seo³, Dai Sik Kim³, Paul C.M. Planken¹

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T3G3.1670 Comparison of Image Resolution in Terahertz Pulsed and Continuous-Wave Imaging Systems

Bahar Davoudi, Mehrnoosh Khabiri, Daryoosh Saeedkia, Safieddin Safavi Naeini

University of Waterloo, Waterloo, Canada

Corresponding author: Bahar Davoudi, bdavoudi@maxwell.uwaterloo.ca

T3G4.1300 High-Resolution Terahertz Tomography Using 17-fs Ultrashort-Pulse Fiber Laser

Jun Takayanagi¹, So Kanamori¹, Koji Suizu¹, Kodo Kawase¹, Masatsugu Yamashita², Toshihiko Ouchi³, Shintaro Kasai³, Hideyuki Ohtake⁴, Hirohisa Uchida⁵, Norihiko Nishizawa⁶

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T3G5.1241 Multichannel THz Line Detection by a Microlens Array excited photoconductive Antenna Array

Boris Pradarutti¹, Ralf Müller¹, Gabor Matthäus², Wiebke Freese¹, Stefan Riehemann¹, Gunther Notni¹, Stefan Nolte², Andreas Tünnermann¹

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Session T3K: Materials: Periodic and Meta 1 **Chair: Abdulhakem Elezzabi**

Tuesday 2:00 - 3:30 pm

Room 119 Kerckhoff

T3K1.1120 Metamaterials for RF Applications [keynote]

Tatsuo Itoh

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T3K2.1139 Noise Versus Coherency in Millimeter-Wave Material Characterization

Boris Kapilevich¹, Jiri Polivka²

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T3K3.1475 Circular Photogalvanic Effect Due to Quantum Interference in the Terahertz Radiation Absorption

Christina Reitmaier¹, Sergey A. Tarasenko², Peter Olbrich¹, Daniel Plohmann¹, Johannes Karch¹, Vera Lechner¹, Dimitri Kvon³, Sergey D. Ganichev¹

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T3K4.1631 Microwave Spectra of Fluoroformyloxyl and Fluorosulfate Radicals

Stepan Urban¹, Lucie Kolesnikova¹, Juraj Varga¹, Marie Simeckova², Lucie N Striteska¹, Patrik Kania¹

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T3K5.1573 Probing Solids Through THz Spectroscopy: Differentiation of Chiral and Racemic Forms of Isostructural and Non-Isostructural Cocrystals

Edward P. J. Parrott¹, Axel Zeitler¹, Tomislav Friscic³, Michael Pepper², William Jones³, Graeme M. Day³, Lynn F. Gladden¹

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3:30 - 4:00 pm

Coffee Break

Bechtel Mall

Session T4A: FELs 1

Chair: George Neil

Tuesday 4:00 - 5:30 pm

Room 155 Arms

T4A1.1752 Exploring Novel Terahertz Detectors and Sources with the UCSB Free-Electron Lasers [keynote]

S James Allen¹, Gregory R Aizin², John Bowers¹, Greg C Dyer¹, Dan Mars³, J Mikalopas², John L Reno⁴, Peter Robrish³, Eric Shaner⁴, Michael Wanke⁴, Gehong Zeng¹

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³Agilent Labs, Santa Clara

⁴Sandia National Laboratories, Albuquerque

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T4A2.1535 Characterization of Windows for Fusion Applications Using a D-Band Network Analyzer

Jens Flamm¹, Andreas Schlaich¹, Andreas Arnold², Oliver Prinz¹, Roland Heidinger³, Manfred Thumm²

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²Forschungszentrum Karlsruhe, Association EURATOM-FZK Institut für Hochleistungsimpuls- und Mikrowellentechnik (IHM), Eggenstein-Leopoldshafen, Germany

³Forschungszentrum Karlsruhe, Institut für Materialforschung 1 (IMF1), Eggenstein-Leopoldshafen, Germany

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T4A3.1459 First Commissioning Results in the IR/THz Range at the Electron Storage Ring Metrology Light Source

Arne Hoehl¹, Roman Klein¹, Ralph Müller¹, Gerhard Ulm¹, Michael Abo-Bakr², Jörg Feikes², Michael v. Hartrott², Godehard Wüstefeld²

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T4A4.1648 Single Shot High Resolution THz Upconversion Spectrometer

Benjamin R Zaks¹, James Heyman², Dominik Stehr¹, Dan Allen¹, Nelson Coates¹, Mark Sherwin¹

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T4A5.1412 Theoretical Study of 174 GHz Operation of the W7-X 1 MW, 140 GHz Gyrotron

Stefan Kern¹, Edith Borie¹, Stefan Illy¹, Oliver Prinz², Manfred Thumm²

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Session T4B: THz Instruments**Chair: Geoffrey Blake****Tuesday 4:00 - 5:30 pm****Room 201 E.Bridge**

T4B1.1671 A High Signal-to-Noise Ratio, Coherent, Frequency-Domain THz Spectrometer Employed to Characterize Explosive Compounds [keynote]

Joseph R. Demers¹, Ronald T. Logan Jr.¹, Normand J. Bergeron², Elliott R. Brown³

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T4B2.1443 2 Port Vectorial THz Electro-Optic Sampling System

L. Meignien¹, J. Mangeney¹, P. Crozat¹, L. Duvillaret²

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T4B3.1418 Tunable CW THz Source with High-Precision Frequency Control

Anselm J. Deninger¹, Thorsten Göbel², Daniel Schönherr², Axel Roggenbuck¹, Frank Lison¹, Peter Meissner²

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T4B4.1627 Fast Sweep Solid State Spectrometer for SubTHz and THz Frequency Ranges

Vladimir Vaks

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T4B5.1322 1.5 μm Wavelength All-Fiber Terahertz Time-Domain Spectrometer

Helmut Roehle, Bernd Sartorius, Harald Künzel, Jutta Böttcher, Michael Schlak, Dennis Stanze

Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institut, Berlin, Germany

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Session T4G: QCL 1**Chair: Tim May****Tuesday 4:00 - 5:30 pm****Room 22 Gates**

T4G1.1565 Integration of Terahertz Quantum Cascade Lasers with Lithographically Micromachined Waveguides [keynote]

Michael C Wanke, Christopher Nordquist, Christian L Arrington, Adam M Rowen, Albert D Grine, Eric A Shaner, Mark Lee

Sandia National Laboratories, Albuquerque, USA

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T4G2.1304 Terahertz Frequency Quantum Cascade Lasers Operating up to 178 K with Copper Metal-Metal Waveguides

Mikhail A Belkin¹, Suraj P Khanna², Jonathan AFan¹, Sahand Hormoz¹, Mo-hamed Lachab², Federico Capasso¹, Alexander G Davies², Edmund H Linfield²

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T4G3.1704 Terahertz Sideband-Tuned Quantum Cascade Laser Radiation

Andriy A. Danylov¹, Jerry Waldman¹, Thomas M. Goyette¹, Michael J. Cou-lombe¹, Andrew J. Gatesman¹, Robert H. Giles¹, Jin Li², William D. Goodhue², Kurt J. Linden³, William E. Nixon⁴

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⁴U.S. Army National Ground Intelligence Center, Charlottesville, USA

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T4G4.1740 Directional Beam Pattern from a Double Metal Quantum Cascade Laser with a TEM-Horn Antenna

Tahsin Akalin¹, Wilfried Mainault², Emilien Peytavit¹, Pierre Jellie², Jean-Francois Lampin¹, Carlo Sirtori², Stefano Barbieri²

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Session T4K: Novel Devices and Components 1

Chair: Farhan Rana

Tuesday 4:00 - 5:30 pm

Room 119 Kerckhoff

T4K1.1591 MEMS-Fabricated Micro Vacuum Electron Devices (Micro-VEDs) for Terahertz (THz) Applications [keynote]

Young-Min Shin, Larry R Barnett, Neville C Luhmann Jr.

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T4K2.1251 Heterostructure Equivalence of Step-Recovery Diodes for Ballistic and Diffusive Electron Resonance - A New Concept for THz Signal Generation [keynote]

Hans L. Hartnagel¹, L. P. Schmidt², B. Nicolae¹, I. Oprea¹, D. Schönherr¹, D. S. Ong³, J. Schür², M. Ruf²

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T4K3.1763 High Efficiency Submillimeter-Wave Imaging Array [keynote]
Nuria Llombart, Anders Skalare, John J Gill, Peter H Siegel

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T4K4.1556 Micromachined Terahertz Waveguides with Embedded Metal Rods

Andrew J Gallant¹, Adam Baragwanath², Peter Swift², David Wood¹, Martyn Chamberlain²

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Poster Session T5D

Tuesday 5:30 - 7:00 pm

Dabney Garden

T5D1.1409 Determination of the Influence of Dialysis on the Human Skin Water Content by Means of Terahertz Spectroscopy

Filip Kadlec¹, Milan Berta¹, Petr Kuzel¹, Frantisek Lopot², Vladimir Polakovic²

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T5D2.1666 Identification of Pollutant Gases from an Atmospheric Mixture Using High Resolution Dispersive Fourier Transformation Spectroscopy

Nawaf N Almoayed, Golam R Khan, Mohammed N Afsar

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T5D3.1461 Coherent Excitation in Superionic Conductors

Teruyoshi Awano¹, Toshiharu Takahashi²

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T5D4.1155 Terahertz Spectrum of KDP Crystal

Bihui Hou¹, Shunsuo Li², Guozhong Zhao³, Wei Meng⁴, Xinan Chang⁵

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T5D5.1305 Study of Terahertz Extended Interaction Oscillator

Kaichun Zhang, Zhenhua Wu, Shenggang Liu

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T5D6.1235 A Fiberstretcher Operating as an Optical Delay Line in a Fiber-coupled THz Spectrometer

Norman Krumbholz, Michael Schwerdtfeger, Tomasz Hasek, Benedikt Scherger, Martin Koch

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T5D7.1380 Orientation Dependence of THz Scattering from Cylindrical Strands

Gretel M Png¹, Mark R Stringer², Brian W-HNg¹, Derek Abbott¹, Robert E Miles²

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T5D8.1633 The Effects of Beamsplitter Emission in a Balanced Fourier Transform Spectrometer

David A. Naylor¹, Locke D. Spencer¹, Peter A. R. Ade²

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²*School of Physics and Astronomy, Cardiff University, Cardiff, UK*

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T5D9.1578 Fano Profiles in Transmission Spectra of Terahertz Radiation through Periodic Metallic Structures

Boris Pradarutti¹, Garik Torosyan², René Beigang³

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T5D10.1435 Terahertz Spectra of GaSe: Fundamental and Two-Order Phonon Processes

Dong Wen Zhang, Zhi Hui Lv, Lin Sun, Zheng Zheng Shao, Jian Min Yuan

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T5D11.1358 Passive 8-mm Microwave Imaging System for the Observing of the Neighborhood Situation

Alexander G. Denisov¹, Vladimir P. Corishnyak¹, Sergey E. Kuzmin¹, Valeriy A. Obolonsky¹, Vassiliy N. Radzikhovskiy¹, Borys M. Shevchuk¹, Borys M. Yshenko¹, Vitaliy P. Uliz'ko¹, Jung Y. Son², Vyacheslav V. Miklashevich¹

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T5D12.1194 Feasibility of Real-Time Terahertz Speckle Metrology

Boris A. Knyazev¹, Olga I. Chashchina², Valery Scherkassky², Mikhail A. Dem'yanenko³, Dmitry G. Esaev³, Gennady N. Kulipanov¹, Nikolay A. Vinokurov¹

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Corresponding author: Boris A Knyazev, knyazev@phys.nsu.ru

T5D13.1584 Perturbation Analysis of Terahertz Confocal Microscopy
Mee-Hyun Lim, Jeonghoi Kim, Younho Han, Kiwon Moon, Euna Jung, Haewook Han

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T5D14.1316 Penetration Monitoring of Fixation Solution into Tissues
Using Millimeter Waves

Maya Mizuno, Kaori Fukunaga, Iwao Hosako

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T5D15.1471 Thermal Portraits of Objects in the MM and IR Wave Bands
Valery A. Golunov, Yevgeniy P. Novichikhin, Andrey P. Chernushich

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T5D16.1775 Startup Scenarios in MW-Class Gyrotrons With Diode
and Triode-Type Electron Guns

Oleksandr V Sinitsyn¹, Gregory S Nusinovich¹, Thomas MAntonsen¹, Alexander N Vlasov²

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T5D17.1280 Multimode Conversions in an Overmoded Coaxial Bragg
Resonator

Ying-Xin Lai, Shi-Chang Zhang, Hui-Bo Zhang, Qi Xin, Bin Chai, Yan-Yan Kong

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T5D18.1579 Iterative Image Method for Apertureless Terahertz Near-
Field Microscope

Kiwon Moon, Jeonghoi Kim, Younho Han, Hongkyu Park, Euna Jung, Haewook Han

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T5D19.1610 Intense Terahertz Wave Generation from Gases
Xiaofei Lu¹, Nicholas Karpowicz¹, Yunqing Chen¹, X.-C. Zhang¹, Matthew Price-Gallagher², Clark Fletcher², Orval Mamer³, Alain Lesimple³, Keith Johnson⁴

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T5D20.1231 Enhanced Coupling Property using a Conical Metal Wire Waveguide in the Terahertz Frequency Range

Young Bin Ji, Eui Su Lee, Jin Seok Jang, Sang-Hoon Kim, Tae-In Jeon

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T5D21.1727 Theoretical Optimization of Metal Mesh THz-Filters for Selecting Harmonics of NovoFEL Radiation

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T5D22.1255 A Terahertz Yagi-Uda Antenna for High Input Impedance

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T5D23.1185 Nonlinearly Driven Oscillations in the Gyrotron Traveling-Wave Amplifier

Chen Chi Chiu¹, Kuo Feng Pao¹, Yin Chu Yan¹, Kwo Ray Chu¹, Larry R Barnett², Neville C Luhmann²

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T5D24.1442 Closed-Form Model of Shunt Capacitance and Inductance of Microstrip Step Discontinuity

Himanshu Singh, Anand K Verma

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T5D25.1311 A Novel Design of an Ortho-Mode Transducer at 150 and 225 GHz - Clover Detector RF Design

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T5D26.1312 Development of Gyrotron FU CW IIA for 600 MHz and

300 MHz DNP-NMR Experiments at the University of Warwick

Toshitaka Idehara¹, La Agusu¹, Isamu Ogawa¹, S. Kobayashi¹, Teruo Saito¹, Ray Dupree², Mark E. Smith²

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T5D27.1221 Narrow-Gap Semiconductor as the All-Wave Detector from Near IR to MM Wave Regions**Fedir F Sizov¹, Valentin N Dobrovolsky¹, Yuri EKamenev², Alex B Smirnov¹, Vyacheslav V Zabudsky¹**¹*Institute of Semiconductor Physics, Kiev, Ukraine*²*Institute for Radiophysics and Electronics, Kharkov, Ukraine*

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T5D28.1432 Design of Gyrotron FU CW VI for 600 MHz DNP-NMR Experiment**M. Glyavin¹, T. Idehara², V. Khizhnyak¹, A. Luchinin¹, V Manuilov¹, LaAgusu², I. Ogawa², T. Saito², H. Takahashi³, T. Fujiwara³**¹*Institute of Applied Physics Russian Academy of Science, Nizhny Novgorod, Russia*²*Research Center for Development of Far Infrared Region, Univ. of Fukui, Fukui, Japan*³*Institute of Protein Research, Osaka University, Osaka, Japan*

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T5D29.1248 Improved Quasi-Optical Launcher for Coaxial Cavity ITER Gyrotron**Jianbo Jin¹, Manfred Thumm¹, Bernhard Piosczyk¹, Jens Flamm², Oliver Prinz¹, Tomasz Rzesnicki¹**¹*Forschungszentrum Karlsruhe, Association EURATOM-FZK, Institut fuer Hochleistungsimpuls- und Mikrowellentechnik (IHM), Karlsruhe, Germany*²*Universitaet of Karlsruhe, Institut für Hoechstfrequenztechnik und Elektronik, Karlsruhe, Germany*

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T5D30.1290 Coupled-mode Theory of Coaxial THz Gyrotron with Two Electron Beams**Diwei Liu, Xuesong Yuan, Yang Yab, Shenggang Liu***THz Research Center, Univ. of Electronic Science & Technology of China, Chengdu, China*

Corresponding author: Diwei Liu, dwliu212220@163.com

T5D31.1187 Terahertz Conductivity of Si and of Ge/Si(001) Heterostructures with Quantum Dots**Elena S Zhukova, Boris P Gorshunov, Anatoly S Prokhorov, Larisa V Arapkina, Valery A Chapnin, Viktor P Kalinushkin, Galina N Mikhailova, Vladimir A Yuryev***A.M. Prokhorov General Physics Institute, Moscow, Russia*

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T5D32.1206 Experimental and Theoretical Thermal Analysis of CVD Diamond Window Units for the ITER Upper Launcher**Theo A. Scherer¹, Roland Heidinger¹, Andreas Meier¹, Dirk Strauss¹, Koji Takahashi², Ken Kajiwara², Keishi Sakamoto²**¹*Institut für Materialforschung IMF-I, Association EURATOM-FZK, Forschungszentrum Karlsruhe, D-76021 Karlsruhe, Germany*²*Plasma Heating Technology Group, Japan Atomic Energy Agency (JAEA), 801-1 Mukoyama, Naka, Japan*

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T5D33.1271 CW Operation of a Tunable 330/460 GHz Gyrotron for Enhanced Nuclear Magnetic Resonance

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T5D34.1211 Low-Voltage, Sheet-Beam MMW Amplifiers

John A Pasour¹, Khanh T Nguyen², Edward L Wright², Thomas Antonsen³, Baruch Levush¹

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T5D35.1167 Effects of Reversed-Field on Electron Chaotic Orbits in a Free-Electron Laser

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T5D36.1408 A New Terahertz Passive Radial Polarizer

Jean-Paul Guillet¹, Ronan Adam¹, Annick Pénarier¹, Jérémie Torres¹, Philippe Nouvel¹, Laurent Chusseau¹, Thierry Grosjean², Fadi Baida², Laurent Billot², Daniel Charraut²

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T5D37.1538 Theoretical Analyses and Numerical Simulation About Photomixing Process in InGaAs with Antenna Structure for CW Terahertz Generation

Jian He¹, Yinghao Yuan¹, Guixing Cao², Jianquan Yao¹

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T5D38.1493 Optimization of Photonic Crystal Interfaces for High Efficiency Coupling of Terahertz Waves

Sun-Goo Lee, Minwoo Yi, Jaewook Ahn, Jae-Eun Kim, Hae Yong Park

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T5D39.1257 A Proposed Measurement of the Reverse Cherenkov Radiation Effect in a Metamaterial-Loaded Circular Waveguide

Dmitry Yu. Shchegolkov, Abul K. Azad, John F. O'Hara, Evgenya I. Smirnova

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T5D40.1590 Alternative Explanation of Free-Induction Decay

Matthew J. Bohn

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T5D41.1327 Effective Permittivity and Scattering Model for the Evaluation of the Leaf Water Status

Maik A Scheller¹, Christian Joerdens¹, Bjoern Breitenstein², Dirk Selmar², Martin Koch¹

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T5D42.1687 Sub-THz RTD Oscillators Integrated with Planar Horn Antennas for Horizontal Radiation

Kenta Urayama¹, Safumi Suzuki¹, Masahiro Asada¹, Hiroki Sugiyama², Haruki Yokoyama²

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T5D43.1776 Simultaneous Dual Scanning Terahertz System

Benjamin S Ung, Brian W Ng, Derek Abbott

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T5D44.1777 Double-modulated DTDS-THz Liquid Spectroscopy using a Novel Spinning Wheel Technique

Jegathisvaran Balakrishnan, Bernd Fischer, Derek Abbott

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T5D45.1667 The Millimeter-Wave Detector Using Vanadium Oxide with Planar Structure Antenna

Ji-Hong Kim¹, Sung-Min Hong², Kyung-Il Lee², Dae-Sung Lee², Byung-Moo Moon¹, Hak-In Hwang²

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T5D46.1378 Broadband Scanning Spectrometer with Heterodyne SIS (Superconductor-Insulator-Superconductor) Receiver

Kenichi Kikuchi¹, Satoshi Kohjiro¹, Masaaki Maezawa¹, Hiroyuki Ozeki²

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T5D47.1417 Emission of Terahertz-Frequency Electromagnetic Radiation from Indium Phosphide under Excitation by Short Pulses of Near-Infrared Radiation

S Hargreaves, R A Lewis

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T5D48.1173 Generation of Terahertz Radiation in Waveguides Partially Loaded with Nonlinear Crystal

Anahit S Nikoghosyan¹, Nikolay N Zinov'ev², Martyn JChamberlain², Richard A Dudley³, Radik M Martirosyan¹

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T5D49.1785 Towards Microwave Photon Counting via Frequency Up-Conversion

Dmitry V. Strekalov, Anatoliy A. Savchenkov, Andrey B. Matsko, Nan Yu

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7:00 - 9:00 pm

Reception

Pacific Asia Museum

Wednesday, September 17, 2008

7:45 - 8:45 am

Registration & Coffee

Dabney Garden

Announcements

Wednesday 8:45 - 9:00 am

Beckman Auditorium

Plenary Talks W1P

Chair: Xi-Cheng Zhang

Wednesday 9:00 - 10:30 am

Beckman Auditorium

W1P1.1262 Why the Submillimeter? Why Has It Taken So Long?

Frank C. De Lucia

Ohio State University, Columbus, Ohio, USA

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W1P2.1163 Investigation of the Lowest-Order TE Mode of the Parallel-Plate Metal Waveguide for Terahertz Pulses

Rajind M Mendis, Daniel M. Mittleman

Rice University, Houston, TX, USA

Corresponding author: Daniel Mittleman, daniel@rice.edu

10:30 - 4:00 pm

Guest Program

Getty Center of Los Angeles

10:30 - 11:00 am

Coffee Break

Dabney Garden

Session W2A: THz Astrophysics & Atmospheric Instrumentation 1 Chair: Hans-Peter Roeser**Wednesday 11:00 - 12:30 pm****Room 155 Arms****W2A1.1159** Submillimeter Spectroscopy - Water and Oxygen: Where are These Key Species in Interstellar Clouds? [keynote]**Paul F Goldsmith***Jet Propulsion Laboratory, California Institute of Technology, Pasadena, USA*

Corresponding author: Paul F. Goldsmith, Paul.F.Goldsmith@jpl.nasa.gov

W2A2.1410 Long Path Length CW-THz Spectrometer Using a Multipass Cell**Francis Hindle, Chun Yang, Arnaud Cuisset, Gael Mouret, Robin Bocquet***Université du Littoral Côte d'Opale, Dunkerque, France*

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W2A3.1212 PILOT: Measuring the FIR Polarization of the Diffuse Interstellar Medium**Jean-Philippe Bernard¹, Peter Ade², Paolo deBernardis³, Peter Hargrave², Bernadette Leriche⁴, Yuying Longval⁴, Christophe Marty¹, Silvia Masi³, Francois Pajot⁴, Louis Rodriguez⁵**¹*CESR, Toulouse, France*²*Cardiff University, Cardiff, UK*³*La Sapienza University, Rome, Italy*⁴*IAS, Orsay, France*⁵*CEA, Saclay, France*

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W2A4.1653 Clear-Air Backscatter from the Lower Atmosphere Using a High-power, Millimeter Wave Radar**Mai T. Ngo¹, George J. Linde²**¹*Naval Research Laboratory, Washington, USA*²*SFA Inc., USA*

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W2A5.1219 Extremely Bright Astrophysical Objects Excited by THz Radiation: Do They Operate in a Maser Regime?**Andrey V. Shepelev***A.N. Kosygin Moscow State University, Moscow, Russia*

Corresponding author: Andrey V. Shepelev, shepelev@rambler.ru

Session W2B: Applications in Biology and Medicine 3 Chair: Fritz Keilmann**Wednesday 11:00 - 12:30 pm****Room 201 E. Bridge****W2B1.1623** An Intra-operative THz Probe For Use During The Surgical Removal of Breast Tumors [keynote]**Philip C Ashworth¹, Padraig O'Kelly², Anand D Purushotham³, Sarah E Pinder³, Michalis Kontos³, Michael Pepper¹, Vincent P Wallace⁴**¹*Cavendish Laboratory, University of Cambridge, Cambridge, UK*

²TeraView Ltd., Cambridge, UK

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⁴Optical + Biomedical Engineering Lab., Univ. of Western Australia, Perth, Australia

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W2B2.1624 The Use of Microwave, Millimeter Wave and Terahertz Spectroscopy for the Detection, Diagnostics and Prognosis of Breast Cancer

Mohammed N. Afsar¹, Mahmut Obol¹, Konstantin Korolev¹, Stephen P Naber²

¹High Frequency Material Measurement & Information Center, Tufts Univ., Medford, USA

²Tufts-New England Medical Center, Department of Pathology, Boston, USA

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W2B3.1711 50 GHz Microwave Exposure Effect of Radiations on Rat Brain
Kavindra Kumar Kesari, Jitendra Behari

Jawaharlal Nehru University, New Delhi, India

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W2B4.1390 THz Spectroscopy of Protein Complexes

Inke M Jones, Derek Abbott, Bernd M Fischer

The University of Adelaide, Adelaide, Australia

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W2B5.1684 Studies on Interfacial Water Adsorbed on Mica at Room Temperature using Terahertz Spectroscopy

S.-J. Chang, S.-M. Ahn, O.-J. Kwon, M.-A. Seo, D.-S. Kim, W.-H. Jhe, G.-S. Park

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Session W2G: Imaging 5

Chair: Kaori Fukunaga

Wednesday 11:00 - 12:30 pm

Room 22 Gates

W2G1.1722 THz Microbolometers for Imaging Applications [keynote]

Erich Grossman¹, Charles Dietlein², Jon Bjarnason¹, Arttu Luukanen³, Mikko

Leivo³, Jari Penttilä⁴

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²ECE Dept., Univ. of Colorado, Boulder, USA

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W2G2.1694 Millimeter Wave Synthetic Thinned Aperture Radiometer

Pekka Kangaslahti, Alan Tanner, Todd Gaier, Bjorn Lambrigtsen, Ian O'Dwyer, David Pukala

Jet Propulsion Laboratory, Pasadena, USA

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W2G3.1208 Active and Passive mm-Wave Imaging for Concealed Weapon Detection and Surveillance

Stephan Stanko, Denis Nötel, Alfred Wahlen, Johann Huck, Frank Klöppel,

Rainer Sommer, Manfred Hägelen, Helmut Essen

FGAN Research Inst. for High-Frequency Physics & Radar Techniques, Wachtberg, Germany

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W2G4.1747 Concealed Object Contrast Enhancement Using Radar Methods in a Submillimeter-Wave Active Imager

Ken B Cooper¹, Robert J Dengler¹, Nuria Llombart², Tomas Bryllert², Goutam Chattopadhyay¹, Erich Schlecht¹, John Gill¹, Choonsup Lee¹, Imran Mehdi¹, Peter H Siegel²

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W2G5.1632 Inverse Synthetic Aperture Radar Imaging at 580 GHz

James A Trischman¹, John R Bennett¹, Kenneth AMelendez¹, Byron F Summers¹, Jeremy Sorensen¹, Kenneth B Cooper², Peter H Siegel²

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Session W2K: Antennas

Chair: Andrea Neto

Wednesday 11:00 - 12:30 pm

Room 119 Kerckhoff

W2K1.1389 Optical Scanning Techniques for Characterization of Terahertz Photoconductive Antenna Arrays [keynote]

Henry F Tiedje¹, Daryoosh Saeedkia², Michael Nagel³, Harold K Haugen³

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²Dept. of Electrical & Computer Engineering, University of Waterloo, Waterloo, Canada

³Department of Engineering Physics, McMaster University, Hamilton, Canada

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W2K2.1546 A Folded Dipole Antenna Having Extremely High Input Impedance for Continuous-wave Terahertz Power Enhancement

Han C Ryu¹, Sung I Kim¹, Min HKwak¹, Kwang Y Kang¹, Seong O Park²

¹Electronics and Telecommunications Research Institute, Daejeon, Korea

²School of Engineering, Information and Communications University, Daejeon, Korea

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W2K3.1536 Catadioptric Dielectric Lens for Imaging Applications

Biddut K Banik, Josip Vukusic, Jan Stake

Physical Electronics Laboratory, Department of Microtechnology and Nanoscience, Chalmers University of Technology, Göteborg, Sweden

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W2K4.1302 Enhanced Emission from THz Antennas Made of Low-Temperature-Grown GaAs with Annealed Ohmic Contacts

Nico Vieweg¹, Martin Mikulics², Maik Scheller¹, Kamran Ezdi¹, Rafal Wilk³, Heinz

W Hübers⁴, Martin Koch¹

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W2K5.1637 A Comparison of the Gaussian Coupling Efficiency for Three Types of Terahertz Horn Antennas

Charlie H Smith,III¹, Hiayoung Xu¹, Jeffery Hesler², N. Scott Barker¹

¹*University of Virginia, Charlottesville, USA*

²*Virginia Diodes, Inc., Charlottesville, USA*

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12:30 - 1:30 pm

Lunch Break

Button Prize Committee

luncheon

Dabney Garden

Library Room, Athenaeum

(by invitation)

Session W3A: THz Astrophysics & Atmospheric Instrumentation 2 Chair: Paul Goldsmith

Wednesday 2:00 - 3:30 pm

Room 155 Arms

W3A1.1151 The Herschel Space Observatory

Matt Griffin¹, Goeran Pilbratt², Thijs de Graauw³, Albrecht Poglitsch⁴

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²*European Space Agency, ESTEC, Noordwijk, Netherlands*

³*SRON, Groningen, Netherlands*

⁴*Max-Planck-Institut für Extraterrestrische Physik, Garching, Germany*

Corresponding author: Matt Griffin, matt.griffin@astro.cf.ac.uk

W3A2.1715 In Situ Gas Sensing Instruments for Planetary Science [keynote]

James L Lambert¹, Michael Bender², Forian VEnglich¹, Anita M Fisher¹, Richard Quinn³, Tullis C Onstott², Aaron P Zent³

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²*Princeton University, Princeton, USA*

³*NASA Ames Research Center, Moffett Field, USA*

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W3A3.1553 Mid-Infrared Observations with the Tuneable Heterodyne Infrared Spectrometer "THIS" [keynote]

Rudolf T Schieder, Guido Sonnabend, Manuela Sornig, Peter Kroetz, Dusan Stupar

Physikalisches Institut, Universitaet zu Koeln, Cologne, Germany

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W3A4.1635 Submillimeter Wave Spectroscopy and the Search for Life on Planets [keynote]

Brian J Drouin, Ken Cooper, Robert A Stachnik, John C Pearson

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Corresponding author: Brian J. Drouin, brian.j.drouin@jpl.nasa.gov

Session W3B: Spectroscopy & Instrumentation: Components **Chair: Torsten Löffler**

Wednesday 2:00 - 3:30 pm

Room 201 E. Bridge

W3B1.1572 Asymmetric Comb-FTIR for Characterizing Metamaterials [keynote]

Fritz Keilmann

Max-Planck-Institut für Biochemie, Martinsried, Germany

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W3B2.1341 Modulators of THz Radiation Based on SrTiO₃ Epitaxial Thin Films

Filip Kadlec¹, Christelle Kadlec¹, Jurgen Schubert², Grigory I Panaitov², Petr Kuzel¹

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²*Institute of Bio- and Nano- Systems and Center of Nanoelectronics and Information Technology, Jülich, Germany*

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W3B3.1726 Electroformed Metal Mesh THz-Filters for Selecting Harmonics of NovoFEL Radiation

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W3B4.1240 Rotary Optical Delay Line for High Speed Scanning of Terahertz Pulse

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W3B5.1759 Co-axially Configured Supersonic Jet Spectrometer for Submillimeter Investigations of Non-covalent Interactions

John W Bevan, Sergey P Belov, Fabrice F Willaert, Blake A McElmurry, Robert R Lucchese

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Session W3G: OCL 2 & Sources

Chair: Mark Lee

Wednesday 2:00 - 3:30 pm

Room 22 Gates

W3G1.1725 Terahertz Quantum-Cascade Lasers: Time Domain Spectroscopy and Micro Cavity Effects [keynote]

J. Darmo¹, G. Fasching¹, A. Benz¹, J. Kröll¹, A.M. Andrews², W. Schrenk², G. Strasser², K. Unterrainer¹, S. Barbieri³, C. Sirtori³, M. Martl¹, D. Dietze¹

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W3G2.1552 Quantum-Cascade Photonic Crystal Laser

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W3G3.1615 Compact, Scalable THz Source

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W3G4.1709 Spectral Gain Narrowing in Terahertz Quantum Cascade Lasers

Sukhdeep S Dhillon¹, Nathan Jukam¹, Dimitri Oustinov¹, Zhen-Yu Zhao¹, Sophie Hameau¹, Stefano Barbieri², Pascal Filloux², Xavier Marcadet³, Carlo Sirtori², Jerome Tignon¹

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W3G5.1279 Design and Fabrication of Quantum Cascade Laser Structure based on III-Nitride Semiconductors in the THz Frequency Range

Wataru Terashima, Hideki Hirayama

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Session W3K: Materials: Periodic and Meta 2**Chair: Tatsuo Itoh****Wednesday 2:00 - 3:30 pm****Room 119 Kerckhoff****W3K1.1505** Terahertz Plasmonic Random Metamaterial [keynote]**Abdulahkem Y Elezzabi, Kenneth J Chau, Pouya P. Maraghechi***University of Alberta, Edmonton, Canada*

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W3K2.1650 A Terahertz Plasmonic Metamaterial Structure for Near-Field Sensing Applications**Amir Arbabi, Arash Rohani, Daryoosh Saeedkia, Safieddin Safavi-Naeini***University of Waterloo, Waterloo, Canada*

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W3K3.1370 High Power Masers Based on 2D Periodic Structures: From the GHz to THz Frequency Range**L Fisher, P MacInnes, I V Konoplev, A W Cross, W He, K Ronald, A D Phelps, C G Whyte, C W Robertson***University of Strathclyde, Glasgow, United Kingdom*

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W3K4.1571 Negative Refracting Materials at THz Frequencies**G Peter Swift¹, Andrew J Gallant², DeChang Dai¹, Mikhail A Kaliteevski¹, Stuart Brand¹, Dagou A Zeze², David Wood², Michael C Petty², Richard A Abram¹, J Martyn Chamberlain¹**¹*Physics Department, Durham University, Durham, United Kingdom*²*School of Engineering, Durham University, Durham, United Kingdom*

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W3K5.1532 Quasi-Optical Measurements of Magnetic Materials at Frequencies up to 630 GHz**Bin Yang¹, Derek H Martin¹, Robert S Donnan¹, Richard J Wylde²**¹*Dept. of Electronic Engineering, Queen Mary University of London, London, UK*²*Thomas Keating Ltd, Station Mills, UK*

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3:30 - 4:00 pm

Coffee Break

Bechtel Mall

Session W4A: THz Photonics**Chair: Kiyomi Sakai****Wednesday 4:00 - 5:30 pm****Room 155 Arms****W4A1.1733** Terahertz Spectroscopy of Ultrafast Carrier Dynamics in Nanomaterials [keynote]**Frank A Hegmann¹, David G Cooke², Markus Walther³**¹*Department of Physics, University of Alberta, Edmonton, Canada*²*DTU Photonics, Technical University of Denmark, Lyngby, Denmark*

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W4A2.1460 Effect of InGaAs Surface States and Interfaces on the Photo-Generated THz Pulse Shape

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W4A3.1760 Photonic Front-End for Millimeter Wave Applications

Vladimir S Ilchenko, Anatoliy A Savchenkov, Jerry Byrd, Andrey B. Matsko, David Seidel, Lute Maleki

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W4A4.1494 THz Differential Spectroscopy of Rhodopsin

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W4A5.1224 Terahertz Time-Domain Spectroscopy of D2O

Jojit C. Torcedo, Harry W.K. Tom

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Session W4B: Material Properties: Organic Chair: Michael von Ortenberg

Wednesday 4:00 - 5:30 pm

Room 201 E.Bridge

W4B1.1356 Differentiation of Structurally Related Compounds Using Terahertz Spectroscopy

Pierre Fromentin¹, Frederic Garet², Evarzeg Le Bouffant¹, Rysvan Maleck-Rassoul¹

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W4B2.1702 THz Spectroscopy Through a High-Pressure Combustion System

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W4B3.1626 High Frequency Characterization of Carbon Nanotube Films
Ziran Wu, Lu Wang, Hao Xin*University of Arizona, Tucson, USA*

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W4B4.1403 Terahertz Electromagnetic Interference Shielding Using Single-Walled Carbon Nanotube Flexible Films**Jong-Hyuk Yim¹, Min-Ah Seo², Yeong-Hwan Ahn¹, Fabian Rotermund¹, Dai-Sik Kim², Soonil Lee¹, Hanjo Lim³**¹*Division of Energy Systems Research, Ajou University, Suwon, Korea*²*Department of Physics and Astronomy, Seoul National University, Seoul, Korea*³*Department of Electrical Engineering, Ajou University, Suwon, Korea*

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W4B5.1265 Far Infrared Spectroscopy of Mineral Particles**Tatiana E. Brusentsova¹, Robert E. Peale¹, Andy Nissinboim², Joseph Boisenberg², Julie Leibold², George Harlow², Denton Ebel², Karl Hibbitts³, Carey Lisse³**¹*University of Central Florida, Orlando, USA*²*American Museum of Natural History, New York, USA*³*Johns Hopkins Univ. Applied Physics Lab, Laurel, USA*

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Session W4G: Mixers**Chair: Trevor Bird****Wednesday 4:00 - 5:30 pm****Room 22 Gates****W4G1.1444** Electrons at Schottky Barrier in Presence of Strong Coherent THz Radiation [keynote]**Gagik T Avanesyan¹, Stepan G Petrosyan², Anahit S Nikoghosyan³, Hans-Peter Roeser⁴**¹*Russian-Armenian State University, Yerevan, Armenia*²*Russian-Armenian State University, Yerevan, Armenia*³*Yerevan State University, Yerevan, Armenia*⁴*Institute of Space Systems, Stuttgart, Germany*

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W4G2.1284 A 4th Harmonic Schottky Diode Mixer - Facilitated Access to THz Frequencies**Jan Schuer, Marcel Ruf, Lorenz-Peter Schmidt***Chair for High Frequency Technology, Univ. of Erlangen-Nuremberg, Erlangen, Germany*

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W4G3.1437 Design of an 874 GHz Biasable Sub-Harmonic Mixer Based on MMIC Membrane Planar Schottky Diodes**Bertrand C Thomas¹, Alain Maestrini², David Matheson¹, Imran Mehdi³, Peter De Maagt⁴**¹*Rutherford Appleton Laboratory, Didcot, UK*²*Observatoire de Paris, Paris, France*

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W4G4.1601 Optical Mixing in THz Schottky Diodes

Daniel Schoenherr¹, Oleg Cojocari², Cezary Sydlo², Thorsten Goebel¹, Michael Feiginov¹, Hans L Hartnagel¹, Peter Meissner¹

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W4G5.1765 New 600 GHz Balanced and Subharmonically Pumped Mixers with Reduced LO Power and State-of-the-Art Performance

Erich Schlecht, Goutam Chattopadhyay, John Gill, Robert Lin, Imran Mehdi
JPL, Pasadena, USA

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Session W4K: Detectors 2

Chair: Erich Grossman

Wednesday 4:00 - 5:30 pm

Room 119 Kerckhoff

W4K1.1673 Ultra-Sensitive Hot-Electron Nanobolometers for THz Astrophysics [keynote]

Boris S Karasik¹, Sergey V Pereverzev¹, Jian Wei², David Olaya², Michael E Ger-shenson², Andrei V Sergeev³, Robin Cantor⁴

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W4K2.1583 Terahertz Photomixing in InP/InGaAs UTC-PD Integrated with TEM Horn Antennas

Alexandre Beck¹, Mohammed Zaknoue¹, Emilien Peytavit¹, Tahsin Akalin¹, Guillaume Ducournau¹, Jean F. Lampin¹, Francis Mollot¹, Francis Hindle², Chun Yang², Gael Mouret²

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W4K3.1577 Microwave and Terahertz Detection in Bundles of Single-Wall Carbon Nanotubes

Sigfrid K. Yngvesson, Kan Fu, Bo Fu, Ric Zannoni, Stephan H Adams, Amine Ouarroui, Enrique Carrion, Jason Donovan, Martin Muthee, John Nicholson, Eric Polizzi

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W4K4.1335 Antenna-Coupled GaAs SBD Detectors for 100 GHz Band Radiation

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W4K5.1705 THz Detection by Correlated 2D Electron Systems

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Session W4U: High Power and Gyrotrons 3

Chair: Jim Allen

Wednesday 4:00 - 5:30 pm

Room 101 Guggenheim

W4U1.1672 Coherent Synchrotron Radiation Measurements in the THz Region at the CLS Far Infrared Beamline [keynote]

Timothy E. May¹, John C. Bergstrom¹, Les O.Dallin¹, Dominique R.T. Appadoo²

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W4U2.1634 Next Generation ECE Imaging: Status and Plans for TEXTOR

Calvin W Domier¹, Anthony JH Donné², Roger JE Jaspers², Xiangyu Kong¹, Neville C Luhmann, Jr.¹, Hyeon K Park³, Benjamin J Tobias¹, Marc J van de Pol²

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W4U3.1161 Megawatt Power Seeded FEL Amplifier Tunable in the 0.5-9THz Range

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W4U4.1472 Development in Russia of the 170 GHz Gyrotron for ITER

Leonid G. Popov², Grigory G. Denisov¹, Alexander G.Litvak¹, Marina V. Agapova², Alexander Ph. Gnedenkov², Vadim O. Nichiporenko², Vadim E. Myasnikov², Evgeny M. Tai², Sergei V. Usachev², Alexey V. Chirkov¹

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W4U5.1521 Recent Experimental Results on the 170 GHz, 2 MW Co-axial Cavity Pre-Prototype Gyrotron for ITER

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Poster Session W5D

Wednesday 5:30 - 7:00 pm

Dabney Garden

W5D1.1470 Optimization of Material Thickness for THz-TDS

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W5D2.1651 The Cornell Caltech Atacama Telescope (CCAT)

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W5D2.1787 Compact, High Power EIK sources used for ESR and NMR

Brian Steer¹, Mark Hyttinen¹, Albert Roitman¹, Peter Horoyski¹, Graham M Smith², David R Bolton², Paul A.S. Cruickshank², Duncan A Robertson²

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W5D3.1467 THz Spectroscopy of Superionic Conducting Glasses

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W5D4.1156 Terahertz Spectrum of Cr³⁺:LiSrAlF₆ Crystal

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W5D5.1664 Millimeter Wave Spectroscopy of Titanium Monoxide and Titanium Dioxide

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W5D6.1588 Determination of FIR Laser Wavelength Using Precise Refractive Index Measurement Method of Optical Etalon

Kazuya Nakayama¹, Akihiro Matsubara¹, Takahiro Kaneba¹, Shigeki Okajima¹, Kazuo Kawahata², Kenji Tanaka², Tokihiko Tokuzawa², Tsuyoshi Akiyama², Haruo Ohkuma³

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W5D7.1561 THz Spectroscopy of ZnTe and GaSe

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W5D8.1657 Terahertz Transmission Spectroscopy of Chalcogenide Glasses

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W5D9.1771 A High-Efficiency Four-Frequency Mode Converter Design with Small Output Angle Variation for a Step-Tunable Gyrotron

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W5D10.1348 Search for the Core Materials of THz Liquid-Core Fibers

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W5D11.1189 Real-Time Shadow Projection Millimeter-Wave Imaging Using Visible Continuum from a Slab of the Cs-Xe DC Discharge

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W5D12.1625 Miniature Elliptical Substrate Lenses for Millimeter-Wave Imaging

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W5D13.1414 Texture Segmentation Based Anomaly Detection in Remote Sensing Images

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W5D14.1404 Comparative Study of Coaxial Bragg Reflector with Windowing Technique

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W5D15.1236 Thin-Film Measurements with THz-Radiation

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W5D16.1599 Ultrafast Changes In The Far-Infrared Conductivity Of Carbon Nanotubes

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W5D17.1531 De-exciting Rydberg Atoms Using a Half-Cycle THz Pulse Train

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W5D18.1737 THz Long Range Plasmonic Waveguide in Membrane Topology

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W5D19.1146 Performance Characteristics of a Reflector Ultra Wide-band Impulse Radiating Antenna

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W5D20.1325 Dielectric Fiber Based Splitters, Couplers and Endoscopes for Sub-THz Frequencies

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W5D21.1273 Study of Cylindrically Periodic Dielectric Waveguides at Submillimeter Waves

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W5D22.1678 THz Multi-frequency Resonance Filter

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W5D23.1132 Millimeter Wave Radiator: Actively and Passively Excited Sinusoidal PCB Strip and Microstrip Antennas

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W5D24.1175 Design and Fabrication of a 100-GHz Channel-Drop Filter

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W5D25.1686 FDTD and PSTD Simulations for W-Band Linear Tapered Slot Antenna

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W5D26.1526 A 10kW W-Band Gyro-BWO Using a Helically Corrugated Waveguide

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W5D27.1669 High Power THz Radiation from a Cylindrical Grating Structure Using a High Current Relativistic Electron Beam

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W5D28.1270 A THz Gyrotron FU CW III with a 20T Superconducting Magnet

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W5D29.1411 Gyrotron Mode Competition Calculations: Investigations on the Choice of Numerical Parameters

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W5D30.1232 A Harmonic Multiplying Gyrotron Traveling Wave Amplifier at Ka Band Developed in IECAS

Jirun Luo, Guangjiang Yuan, Yansheng Zhang, Wei Guo, Min Zhu, Chongqing Jiao, Yin Li, Tao Zhang, Haiyan Sun, Yuantao Luan, Chi Zhang, Jian Cui

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W5D31.1143 Polarization THz Spectroscopy in High Pulsed Magnetic Fields in Voigt and Faraday Geometries

Vladimir B. Anzin¹, Sergey P. Lebedev¹, Alexander A. Mukhin¹, Oleg E. Porodinkov¹, Anatoly S. Prokhorov¹, Igor E. Spektor¹, Michael N. Kazeev², Vladimir F. Kozlov², Yuri S. Tolstov²

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W5D32.1675 Measurement and Modeling of CPW Transmission Lines and Power Dividers on Electrically Thick GaAs Substrate to 220GHz

Lai Bun Lok¹, Chi-Jeon Hwang¹, Harold M. H. Chong², Khaled Elgaïd¹, Iain G. Thayne¹

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W5D33.1423 Towards a 4 MW 170 GHz Coaxial Gyrotron Resonator Design

Matthias H. Beringer¹, Stefan Kern¹, Ying-hui Liu², Manfred Thumm³

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W5D34.1310 Calculation and Design of an Experimental Verification of Coaxial Gyrotron with Two Beams

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W5D35.1332 Effects of Self-Fields on Growth Rate in a Free-Electron Laser with Planar Wiggler Magnetic Field

Mahdi Esmaeilzadeh¹, Vahid Ghafouri²

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W5D36.1344 Electronic Charge Pumping in Quantum Nanoring under Harmonic Signals

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W5D37.1309 Interaction of Electron Beam-Surface Plasmon in Planar Structures

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W5D38.1612 Quasi-Optical Notch Filters for Plasma Imaging Applications

Tianran Liang, Calvin W. Domier, Zuowei Shen, Neville C. Luhmann, Jr.

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W5D39.1738 Antenna-Coupled Direct Detectors for Millimeter-wave and Submillimeter-wave Focal Plane Arrays

Hooman Kazemi

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W5D40.1611 Vacancy Effects on Optical Gap in GaAs in The Presence of Spin Orbit Interaction

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W5D41.1774 Excitation of Backward Waves in the Beam Tunnel of a High Power Gyrotron

Jiao YU, Thomas M Antonsen, Gregory S Nusinovich

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W5D42.1486 Optimizing Two-Dimensional Tilted-Front Laser Pulses for Efficient Terahertz Generation

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W5D43.1581 Efficient Optical-to-Terahertz Conversion of Femtosecond Laser Pulses Propagating Along a Sandwich Structure with Thin LiNbO₃ Core

Sergey B. Bodrov¹, Andrey N. Stepanov¹, Boris V. Shishkin¹, Igor E. Ilyakov¹,

Rinat A. Akhmedzhanov¹, Michael I. Bakunov²

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W5D44.1440 Generation of Intense Terahertz Radiation from Laser-Produced Plasma of Metal Foil Target

Shigeki Nashima¹, Kohei Shimizu¹, Makoto Hosoda¹, Hiroshi Murakami², Satoshi Orimo², Koichi Ogura², Michiaki Mori², Akito Sagisaka², Hiroyuki Daido²

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W5D45.1649 Improved Performance of Hybrid Electronic Terahertz Generators

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W5D46.1401 Particle-In-Cell Simulation of 100 GHz Reentrant Linear Magnetron

Jung-Il Kim, Seok-Gy Jeon, Yun-Sik Jin, Geun-Ju Kim, Dae-Ho Kim, Sun-Shin Jung

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W5D47.1317 Design of Superconducting Terahertz Digicam
Hiroshi Matsuo¹, Yasunori Hibi¹, Hirohisa Nagata², Hidero Arai³, Seiichiro Ariyoshi⁴, Chiko Otani⁴, Hirokazu Ikeda², Mikio Fujiwara⁵

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W5D48.1313 Homodyne Mixing at 150 GHz in a High Electron Mobility Transistor

Michele Ortolani¹, Alessandra Di Gaspare¹, Ennio Giovine¹, Florestano Evangelisti¹, Andrea Doria², Emilio Giovenale², Gian Piero Gallerano², Giovanni Messina², Ivan Spassovsky², Antonio Cetronio³, Claudio Lanzieri³, Marco Peroni³, Vittorio Foglietti¹

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W5D49.1266 Tunable InGaAs/InAlAs/InP Far-IR Detector Based On Plasmon Resonance

Robert E. Peale¹, Himanshu Saxena¹, Walter R.Buchwald²

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W5D50.1487 Investigation of THz Radiation Generation in a Laser Spark of Axicon Discharge

Rinat A. Akhmedzhanov, Igor E. Ilyakov, Vyacheslav A. Mironov, Evgeny V. Suvorov, Daniil A. Fadeev, Boris V. Shishkin

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7:00 - 9:00 pm

IOC/LOC Dinner

La Canada (by invitation)

Thursday, September 18, 2008

7:45 - 8:45 am

Registration & Coffee

Dabney Garden

Announcements

Thursday 8:45 - 9:00 am

Beckman Auditorium

Plenary Talks R1P

Chair: Terry Parker

Thursday 9:00 - 10:30 am

Beckman Auditorium

R1P1.1734 High Power Gyrotrons: Development and Applications

Alexander Litvak

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R1P2.1739 Infrared, Millimeter, and Terahertz Waves: New Innovations and Applications for Cultural Heritage

Maurizio Seracini¹, Gian Piero Gallerano², Gianfranco Morelli³, Falko Kuester¹

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10:30 - 11:00 am

Coffee Break

Dabney Garden

Session R2A: Spectroscopy: Novel Techniques

Chair: Xuechu Shen

Thursday 11:00 - 12:30 pm

Room 155 Arms

R2A1.1547 Terahertz Transfer onto a Telecom Optical Carrier [keynote]

Sukhdeep S Dhillon¹, Stefano Barbieri², Carlo Sirtori²

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²Matériaux et Phénomènes Quantiques, University Paris VII, Paris, France

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R2A2.1234 200 Hz Rapid Scan Fiber-coupled Terahertz Time Domain Spectroscopy System

Frank Ellrich¹, Daniel Molter¹, Tristan Weinland², Michael Theuer², Joachim Jonuscheit¹, Rene Beigang¹

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R2A3.1274 Enhancement of Optical Rectification for THz Amplification in One-Dimensional Photonic Crystals

Noriaki Tsurumachi¹, Hideto Shirai¹, Tatsuya Kokuhata¹, Hayato Miyagawa¹, Shyun Koshiba¹, Shunsuke Nakanishi¹, Hiroshi Itoh¹, Masanori Hangyo²

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R2A4.1619 Toward Standoff Distance Terahertz Wave Sensing
Jianming Dai¹, Nicholas Karpowicz¹, Qian Song¹, Cunlin Zhang², X.-C. Zhang¹

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R2A5.1324 Precise Frequency Measurement of Sub-THz Test Source Referring to as Terahertz Frequency Comb

Ryotaro Nakamura, Shuko Yokoyama, Takeshi Yasui, Tsutomu Araki

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Session R2B: Applications in Biology & Medicine 4

Chair: Philip Ashworth

Thursday 11:00 - 12:30 pm

Room 201 E. Bridge

R2B1.1587 Terahertz Near-Field Imaging of Biomolecular Nanostructures [keynote]

Jeonghoi Kim, Hongkyu Park, Euna Jung, Younho Han, Kiwon Moon, Mee-Hyoun Lim, Haewook Han

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R2B2.1519 Millimeter Wave Irradiation and Invasion into Living Bodies using AR Waveguide Vent Antennas and Gyrotron

Masato Teranaka¹, Akitaka Doi¹, Isamu Ogawa², Tomohiro Saito², Toshihisa Idehara², Toshiaki Tatsukawa³

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R2B3.1153 Human Skin as Arrays of Helical Antennas in the Millimeter and Submillimeter Wave Range

Yuri Feldman, Alexander Puzenko, Paul Ben Ishai, Andreas Caduff, Aharon J Agranat

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R2B4.1381 Studying Protein Dynamics in Aqueous Solutions through Linear and Non-linear THz Spectroscopy

Thomas Feil, Takanori Uzawa, Kevin W Plaxco, S. James Allen

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R2B5.1229 The Effects of Formalin Fixing on Terahertz Properties of Biological Samples

Yiwen Sun, Emma Pickwell-MacPherson

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Session R2G: Imaging 6

Chair: Frank Hegmann

Thursday 11:00 - 12:30 pm

Room 22 Gates

R2G1.1371 Low Noise Radiometers for Passive Millimeter Wave Imaging [keynote]

Jonathan J Lynch¹, Joel N Schulman², James HSchaffner¹, Harris P Moyer¹, Yakov Royter¹, Perry A Macdonald¹, Brian Hughes¹

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²*The Aerospace Corporation, El Segundo, USA*

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R2G2.1779 Active MMW Multi-Parametric Imaging Technique for Security Applications.

Leonid V. Volkov, Alexander I. Voronko, Natalie L. Berendakova

Secomtech Ltd., Moscow, Russia

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R2G3.1191 A 585 GHz Annular-Slot Antenna Coupled Two-Dimensional Focal-Plane Array Utilizing Twin-HEB Devices

Lei Liu, Rebecca R. Percy, Haiyong Xu, Guoguang Wu, Arthur W. Lichtenberger, Robert M. Weikle, II

Charles L. Brown Dept. of Electrical & Computer Engineering, Univ. of Virginia, Charlottesville, USA

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R2G4.1474 Polarization Information for Terahertz Imaging

Yan Zhang, Ranxi Zhang, Ye Cui, Wenfeng Sun

Department of Physics, Capital Normal University, Beijing, China

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R2G5.1249 Sub-Terahertz Imaging for Construction Materials

Toru Kurabayashi¹, Li Zhen², Piotr Plotka³, Minro Watanabe¹, Yutaka Oyama², Jun-ichi Nishizawa³

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Session R2K: Heterodyne Receivers**Chair: Hans Hartnagel****Thursday 11:00 - 12:30 pm****Room 119 Kerckhoff**

R2K1.1522 First Light From the Superconducting Integrated Receiver on Board Terahertz Limb Sounder TELIS [keynote]

Pavel de Yagoubov¹, Gert de Lange¹, Ruud Hoogeveen¹, Arno de Lange¹, Valery Koshelets²

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²*Institute of Radio Engineering and Electronics, Moscow, Russia*

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R2K2.1272 A 0.2-0.5 THz Heterodyne Receiver Based on a Photonic Local Oscillator and a Superconductor-Insulator-Superconductor Mixer
Satoshi Kohjiro¹, Kenichi Kikuchi¹, Masaaki Maezawa¹, Tomofumi Furuta², Atsushi Wakatsuki², Naofumi Shimizu³, Tadao Nagatsuma³, Yuichi Kado³, Hiroshi Ito², Akira Shoji¹

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R2K3.1566 Development of the 787-950 GHz ALMA Band 10 Cartridge
Yoshinori Uzawa¹, Takafumi Kojima², Matthias Kroug¹, Yasunori Fujii¹, Massimo Candotti¹, Wenlei Shan³, Masanori Takeda⁴, Keiko Kaneko¹, Sergey Shitov¹, Ming-Jye Wang⁵

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R2K4.1757 Sensitive Broadband SIS Receivers for Microwave Limb Sounding

John S. Ward, Karen A. Lee, Jonathan H. Kawamura, Goutam Chattopadhyay, Paul C. Stek

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R2K5.1515 A 320-360 GHz Sub-Harmonically Pumped Image-Rejection Mixer for Earth Observation Applications

Simon P Rea¹, Bertrand Thomas², David N Matheson²

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12:30 - 1:30 pm	Lunch Break JIRMMW Editorial Board luncheon	Dabney Garden Library Room, Athenaeum (by invitation)
12:30 - 2/4:00 pm	Guest Program	Norton Simon & Gamble House

Session R3A: Transmission Lines

Chair: Dan Mittleman

Thursday 2:00 - 3:30 pm

Room 155 Arms

R3A1.1314 A Sub-Wavelength Holes Diffraction Radiation Array [keynote]

Shenggang Liu, Min Hu, Yaxin Zhang, Yuebao Li, Renbin Zhong

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R3A2.1428 Numerical Analysis of Complex Mirror Transmission Lines

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R3A3.1533 Surface Plasmon Polariton Generation on Metal Surface: From Nano-optical to Terahertz Frequency Regime

Dai-sik Kim¹, Jihun Kang², Hyunwoo Kihm¹, Kwanggeol Lee¹, Minah Seo¹, Kwangjun Ahn¹, A. J. L. Adam³, Q-Han Park², P. C. M. Planken³

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R3A4.1544 Numerical and Experimental Investigations of a Diplexer for Power Combination and Switching of High-power Millimeter Waves

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R3A5.1567 Mode Conversion Losses in ITER Transmission Lines

David S Tax, E Nicholas Comoltey, Seong-Tae Han, Michael A Shapiro, Jagadishwar R Sirigiri, Richard J Temkin, Paul P Woskov

Massachusetts Institute of Technology, Cambridge, USA

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Session R3B: Materials: Periodic and Meta 3**Chair: Xiang Zhang****Thursday 2:00 - 3:30 pm****Room 201 E. Bridge****R3B1.1373 Active Terahertz Metamaterials [keynote]****John F O'Hara¹, Hou-tong Chen¹, Abul K Azad¹, Evgneya Smirnova¹, Willie J Padilla², Richard D Averitt³, Antoinette J Taylor¹**¹*Los Alamos National Laboratory, Los Alamos, USA*²*Boston College, Boston, USA*³*Boston University, Boston, USA*

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R3B2.1525 Bulk Negative Index Metamaterial Operating at THz Frequencies**Oliver Paul, Christian Imhof, Benjamin Reinhard, Remigius Zengerle, René Beigang***University of Kaiserslautern, Kaiserslautern, Germany*

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R3B3.1592 Highly Birefringent Terahertz Plastic Photonic Crystal Fibers**Younho Han, Minsu Cho, Jeonghoi Kim, Hongkyu Park, Euna Jung, Kiwon Moon, Haewook Han***Pohang University of Science and Technology, Pohang, Korea*

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R3B4.1636 Polarization Selective Terahertz Photonic Crystal Slab Waveguide**Khadijeh Bayat, Sujeet K Chaudhuri, Safieddin Safavi-Naeini***University of Waterloo, Waterloo, Canada*

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R3B5.1480 Terahertz Photocurrents in Heterostructures with One-Dimensional Lateral Periodic Potential**Peter Olbrich¹, Roghaiyeh Ravash¹, Tobias Feil¹, Sergey D. Danilov¹, Juri Allerdings¹, Dieter Weiss¹, Eougenious L. Ivchenko², Sergey D. Ganichev¹**¹*Terahertz Center, University of Regensburg, Regensburg, Germany*²*A.F. Ioffe Institute, St. Petersburg, Russia*

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Session R3G: Sources 2**Chair: Alain Maestrini****Thursday 2:00 - 3:30 pm****Room 22 Gates****R3G1.1766 Tunable Broadband Frequency-Multiplied Terahertz Sources [keynote]****John S. Ward¹, Goutam Chattopadhyay¹, John Gill¹, Hamid Javadi¹, Choonsup Lee¹, Robert H. Lin¹, Alain Maestrini², Frank Maiwald¹, Imran Mehdi¹, Erich Schlecht¹**

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R3G2.1339 Terahertz Raman Laser Based on Silicon Doped by Phosphorus

Heinz-Wilhelm Hübers¹, Sergey Pavlov¹, Ute Böttger¹, Roman Zhukavin², Valery Shastin², Britta Redlich³, Nikolai Abrosimov⁴, Helge Riemann⁴, Niels Hovenier⁵

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R3G3.1699 AIP/GaP Quantum Wells for Implementing Intersubband Devices in the 30-60 μm Wavelength Region

M. Goiran¹, M. P. Semtsiv², W. T. Masselink², J. Leotin¹

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R3G4.1422 Frequency Measurement in THz Domain by using Femto-second Laser Frequency Comb

Gael Mouret¹, Robin Bocquet¹, Francis Hindle¹, Arnaud Cuisset¹, Chun Yang¹, Giovanni D Rovera²

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R3G5.1606 Multiplier-based Sources of Terahertz Power

Thomas W Crowe, David W Porterfield, Jeffrey L Hesler

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Session R3K: Advanced Components

Chair: Ullrich Pfeiffer

Thursday 2:00 - 3:30 pm

Room 119 Kerckhoff

R3K1.1723 Plasma Wave Terahertz Electronics [keynote]

Michael Shur

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R3K2.1717 Porous Fiber: Low Loss, Low Dispersion Waveguide For THz Transmission

Shaghik Atakaramians, Shahraam Afshar V., Bernd M. Fischer, Derek Abbott, Tanya M. Monro

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R3K3.1297 Terahertz Radiation with Cylindrical Mimicking Surface Plasmons Wave Structure**Yaxin Zhang, Ming Hu, Yang Yan, Renbin Zhong, Shenggang Liu***Terahertz Research Centre, Univ. of Electron Science & Technology of China, Chengdu, China*

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R3K4.1233 REconfigurable Terahertz INtegrated Architecture (RETINA)**Stepan Lucyszyn, Yun Zhou***Imperial College London, London, UK*

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R3K5.1586 The Bias II Feedback System: Understanding and Improving Stability in NbN HEB Terahertz Receivers**Ric Zannoni, Sigfrid Yngvesson***University of Massachusetts, Amherst, USA*

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3:30 - 4:00 pm Coffee Break

Bechtel Mall

Session R4A: Gyrotrons 4**Chair: Mikhail Glyavin****Thursday 4:00 - 5:30 pm****Room 155 Arms****R4A1.1695** High Power Gyrotron Development for Fusion Application [keynote]**Keishi Sakamoto, Ken Kajiwar, Atsushi Kasugai, Yasuhisa Oda, Takayuki Kobayashi, Koji Takahashi, Noriyuki Kobayashi, Shinichi Moriyama, Tsuneyuki Fujii***Japan Atomic Energy Agency, Naka, Japan*

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R4A2.1512 Efficiency Enhancement of Gyrotron-Based Systems for Technological Applications**Gregory G Denisov, Yuri V Bykov, Mikhail Yu Glyavin, Mikhail M Morozkin, Alexey G Luchinin, Dmitry I Sobolev***Institute of Applied Physics, Nizhny Novgorod, Russia*

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R4A3.1550 Studies on a 170 GHz, 1.0-1.3 MW, CW Conventional Cavity Gyrotron**Kartikeyan Machavaram¹, Borie Edith², Gerd Gantenbein², Stefan Kern², Bernhard Piosczyk², Manfred Thumm²**¹Indain institute of Technology Roorkee, Roorkee, India²Forschungszentrum Karlsruhe, Karlsruhe, Germany

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R4A4.1366 Analytical Theory of Low Frequency Oscillations in Gyrotrons**Ran Yan¹, Thomas, M Antonsen Jr.², Gregory S Nusinovich²**

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R4A5.1548 A Frequency Tunable Gyrotron: FU CW IV

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Session R4B: Materials: Periodic and Meta 4

Chair: Toni Taylor

Thursday 4:00 - 5:30 pm

Room 201 E.Bridge

R4B1.1732 Metamaterials: from THz to Optical Frequencies [keynote] **Xiang Zhang**

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R4B2.1691 Metamaterials for the Terahertz Gap

Willie J Padilla¹, Houtong Chen², Nathan I Landy¹, Christopher Bingham¹, Hu Tao³, Xin Zhang³, Josh MO Zide⁴, Arthur C Gossard⁴, Antoinette J Taylor², Richard D Averitt⁵

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R4B3.1192 Negative Refraction Demultiplexer Metamaterial for Millimeter Waves

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R4B4.1375 Observation of Semiconductor Test Circuits with Defects using the Laser THz Emission Microscope

Masatsugu Yamashita¹, Chiko Otani¹, Toru Matsumoto², Katsuyoshi Miura³, Kouji Nakamae³, Masayoshi Tonouchi³, Kiyoshi Nikawa⁴

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R4B5.1559 Echo Cancellation in Pulsed Terahertz Integrated Circuits
Mohammad Neshat, Abdorreza Heidari, Daryoosh Saeedkia, Safieddin Safavi-Naeini

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Session R4G: Sources 3

Chair: Tom Crowe

Thursday 4:00 - 5:30 pm

Room 22 Gates

R4G1.1754 In-Phase Power Combining of Submillimeter-wave Multipliers [keynote]

Alain E Maestrini¹, John S Ward², Goutam Chattopadhyay², Erich Schlecht², John J Gill², Choonsup Lee², Hamid Javadi², Imran Mehdi²

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R4G2.1242 Pump Beam Diameter Dependent Terahertz Generation from Surface Emitters - Experiment and Simulation

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R4G3.1323 Terahertz Generation with an 830-nm All Semiconductor Femtosecond Laser System

Christian Joerdens¹, Tobias Schlauch², Mingyuan Li², Martin R Hofmann², Mark Bieler³, Martin Koch¹

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R4G4.1196 Tunable Terahertz Generation in Periodically Poled Structures Using Femtosecond Laser Pulses

N.E. Yu¹, C. Kang¹, H.K. Yoo¹, C. Jung¹, Y.L. Lee¹, C.-S. Kee¹, D.-K. Ko¹, K. Kitamura², S. Takekawa², J. Lee¹

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R4G5.1237 Terahertz Subwavelength Waveguide Emitters

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Session R4K: Applications in Security and Defense

Chair: Michael Shur

Thursday 4:00 - 5:30 pm

Room 119 Kerckhoff

R4K1.1174 A Method for Analyzing Active Submillimeter-Wave Imaging System Performance [keynote]

H. Bruce Wallace¹, Mark J Rosker²

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R4K2.1374 A 3-D Millimeter-wave Luggage Scanner

Manfred Haegelen¹, Stefan Stanko¹, Helmut Essen¹, Gunnar Briesse¹, Michael Schlechtweg², Axel Tessmann²

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R4K3.1318 Broadband Terahertz Time-Domain Spectroscopy of Drugs-of-Abuse Mixtures and 'Street' Samples

Andrew D Burnett¹, Wenhui Fan¹, Prashanth CUpadhy¹, John E Cunningham¹, Michael Hargreaves², Tasnim Munshi², Howell GM Edwards², Giles Davies¹, Edmund H Linfield¹

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R4K4.1357 Study of Two Sporulated Bacillus Species by THz Time Domain Spectroscopy

Pierre Fromentin¹, Frederic Garet², Evarzeg Le Bouffant¹, Rysvan Maleck-Rassoul¹

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R4K5.1524 Numerical Analysis of Biased GaAs/AlGaAs Intersubband Raman Laser

Makoto Miura, Shin'ichi Katayama

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Poster Session R5D

Thursday 5:30 - 7:00 pm

Dabney Garden

R5D1.1396 Frequency Tunable Gyrotron Using Backward-Wave Components**Tsun-Hsu Chang¹, Toshitaka Idehara², Isamu Ogawa², L. Agusu², S. Kobayashi²**¹*Department of Physics, National Tsing Hua University, Hsinchu, Taiwan*²*Research Center for Development of Far-Infrared Region, Fukui University, Fukui, Japan*

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R5D2.1772 A Review of Millimetre Wave and Terahertz Technology for Detection of Concealed Threats**Michael C Kemp***Iconal Technology Ltd, Cambridge, United Kingdom*

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R5D3.1306 THz Ellipsometry in Theory and Experiment**Daniel R. Dietze, Damien P. Kelly, Juraj Darmo, Karl Unterrainer***Vienna Technical University, Photonics Institute, Vienna, Austria*

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R5D4.1462 Correlation of Structural and MW-MMW Dielectric Properties with Vibrational Modes in BaX_{1/3}Ta_{2/3}O₃ Complex Perovskites**Mariana I Toacsan¹, Andrei Ioachim¹, Liviu Nedelcu¹, Marian G Banciu¹, Lucian Mihut¹, Andrei Szilagyi²**¹*National Institute of Materials Physics, Bucharest, Romania*²*Military Equipment and Technologies Research Agency, Bragadiru, Romania*

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R5D5.1379 Instrumentation of Terahertz Time-domain Spectroscopic System Including Two Kinds of THz-Radiation Source**Keiko Kitagishi, Yusuke Izutani***Otsuka Electronics Co. Ltd., Hirakata, Japan*

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R5D6.1568 Understanding the Catalytic Activity of Heat Treated Carbon Nanofibres: Investigation of their Dielectric Properties at THz Frequencies**Edward P. J. Parrott¹, Axel Zeitler¹, James McGregor¹, Shu-Pei Oei², Husnu E Unalan², Swee-Ching Tan², William I Milne², Jean-Phillipe Tessonnier³, Robert Schlögl³, Lynn F Gladden¹**¹*Department of Chemical Engineering, Univ. of Cambridge, Cambridge, United Kingdom*²*Centre for Advanced Photonics and Electronics, Univ. of Cambridge, Cambridge, United Kingdom*³*Fritz-Haber Institut der Max-Planck-Gesellschaft, Berlin, Germany*

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R5D7.1293 Active Gas Sensing with Sub-terahertz Waves Reflected from a Wall

Naofumi Shimizu¹, Ho-Jin Song¹, Tomofumi Furuta², Ryoichi Fukasawa³, Koji Suizu⁴, Tadao Nagatsuma¹, Yuichi Kado¹

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R5D8.1696 InN Thin Films Deposition by rf Magnetron Sputtering **Mariana T Braic¹, Catalin N Zoita¹, Viorel TBraic¹, Mariana I Toacsan², Andrei Ioachim²**

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R5D9.1244 Photonic Crystals for On-Off Switching of Sub-Terahertz Electromagnetic Waves

Tomasz Hasek¹, Zahra Ghattan¹, Rafal Wilk¹, Mahmoud Shahabadi², Martin Koch¹

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R5D10.1528 Vector Field Mapping of THz-Electromagnetic Wave Transmitted Through Quadruple Holes

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R5D11.1499 Poynting Vector Mapping of Terahertz Wave Transmission through Metallic Grating

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R5D12.1405 Material Scanner in the Lower Terahertz **Christian Krebs¹, Dirk Nüssler², Stephan Schneider²**

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R5D13.1647 Passive Millimeter-Wave Imaging System using a Substrate Integrated Waveguide Antenna**Benjamin Lopez-Garcia¹, Devata V.B. Murthy¹, Jose Soto-Manriquez², Alonso Corona-Chavez¹**¹Large Millimeter Telescope, INAOE, Tonantzintla, Mexico²Universidad Autonoma de Puebla, Puebla, Mexico

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R5D14.1338 THz-Wave Tomographic Imaging: An Approach via CT Reconstruction from Limited Projections**Naoki Sunaguchi¹, Yoshiaki Sasaki², Mina Kawai¹, Tetsuya Yuasa¹, Chiko Otani²**¹Yamagata University, Yonezawa, Japan²RIKEN, Sendai, Japan

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R5D15.1605 Gas Recognition with Terahertz Time-Domain Spectroscopy and Reference-Free Spectrum: A Preliminary Study**Hungyen Lin, Withawat Withayachumnankul, Bernd M Fischer, Samuel P Mickan, Derek Abbott***The University of Adelaide, Adelaide, Australia*

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R5D16.1621 High Precision Registration Of Optical Picosecond Impulses Responses In Case Of Their Propagation In Natural And Artificial Environments**Vladimir I. Grigoryevskij¹, Maria V. Grigoryevskaya¹, Vladimir V.Khabarov¹, Sergey P. Golovachev¹, Michail T. Prilepin²**¹Institute of Radioengineering and Electronics, Russian Academy of Sciences, Fryazino, Russian Federation²Inst. of Physics of the Earth, Russian Academy of Sciences, Moscow, Russian Federation

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R5D17.1502 Phase Shift Measurement of the THz Wave with Laser Displacement Sensor**Shingo Saito¹, Norihiko Sekine², Iwao Hosako², Kiyomi Sakai¹**¹National Institute of Information and Communications Technology, Kobe, Japan²National Institute of Information and Communications Technology, Koganei, Japan

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R5D18.1287 Improved Terahertz Sensors Based on Frequency Selective Surfaces For Thin-film Sensing**Ibraheem A. I. Al-Naib, Christian Jansen, Martin Koch***Inst. for High Frequency Technology/Technical Univ. of Braunschweig, Braunschweig, Germany*

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R5D19.1188 Air-core Bandgap Terahertz Fiber with Wider Bandwidth
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R5D20.1453 Modeling of Dynamic Effects in a Laser-Driven Semiconductor Switch of High-Power Microwaves

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R5D21.1121 Study on Power Extraction using a Dielectric-Loaded Rectangular Waveguide

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R5D22.1482 Numerical Optimization of Smooth-Wall and Corrugated Horn Antennas

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R5D23.1350 Design Considerations to Improve the Performance of a Rectangular Microstrip Patch Antenna at THz Frequency

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R5D24.1563 Millimeter and THz Extraordinary Transmission Hole Arrays

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R5D25.1689 Hybrid FDTD/PSTD Simulation for Ultrawideband Microstrip Antenna

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R5D26.1395 W-band TE₀₁ Gyrotron Backward-Wave Oscillator with Distributed Loss

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R5D27.1506 Enhanced Transversal Collector Sweeping for High Power CW Gyrotrons

Stefan Illy¹, Martin Schmid¹, Harald Braune², Volker Erckmann², Heinrich P Laqua², F. Noke², F. Purps²

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R5D28.1640 Magnetron Injection Gun Measurements

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R5D29.1479 After Cavity Interaction in Gyrotrons: On the Influence of Different Models for Non-Uniform Magnetic Fields

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R5D30.1469 ECRH -Antennas and In-Vessel Components for the W7-X Stellarator

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R5D31.1558 Parametrization Technique for the Preliminary Gun Design of the EU 170GHz 1MW Conventional Cavity Gyrotron for ITER **Ioannis Gr. Pagonakis¹, Stefan Illy², Miguel Silva¹, Jean-Philippe Hogge¹, Stefano Alberti¹, Konstantinos A. Avramides³, Bernard Piosczyk², Ferran Albajar⁴, Tullio Bonicelli⁴**

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R5D32.1439 THz TE CS₂ Laser

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R5D33.1190 Analysis of the Dispersion Characteristics of Gyro-TWT with Axially Periodic Dielectric and Metal Loading

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R5D34.1307 Nonlinear Analysis of Gyro-TWT Amplifier with Helical Interaction Waveguide

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R5D35.1180 Free-Electron Laser with Resonant Pumping

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R5D36.1767 Terahertz Response of Microfluidic-Jetted Fabricated 3D Multilayer Metamaterials

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R5D37.1278 Linac Based fs-THz Program at PAL

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R5D38.1430 Propagating Mode Analysis and Field Reconstruction in the Corrugated Waveguides of a High Power Electron Cyclotron Heating System

Takashi Shimozuma¹, Hiroshi Idei², Michael AShapiro³, Richard J Temkin³, Shin Kubo¹, Yasuo Yoshimura¹, Hiroe Igami¹, Hiromi Takahashi¹, Takashi Notake⁴, Satoshi Ito¹, Sakuji Kobayashi¹, Yoshinori Mizuno¹, Yasuyuki Takita¹, Takashi Mutoh¹

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R5D39.1431 Analysis of Microstrip Transmission-Line on an Anisotropic Substrate

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R5D40.1450 Subspace and Wavelet-Packet Algorithms for De-Noising and Classifying Broadband THz Transients

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R5D41.1393 Excitation of a Pure TEMn Mode at Low Terahertz Region **Tsun-Hsu Chang, Cheng-Hsien Li, Chi-Nan Wu, Ching-Fang Yu**

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R5D42.1607 III-V Based Room Temperature THz Detectors

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R5D43.1176 Numerical Simulation of Extraction Barrier Width Effects on Terahertz Quantum Cascade Laser

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R5D44.1333 A Pump Enhanced ns-OPO for THz Generation

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R5D45.1243 A Room Temperature NbN Bolometer for Terahertz Detection

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R5D46.1509 The First Experimental Results of mm-Wave Generation by Photomixing

Sungil Kim, Han-Cheol Ryu, Seungbeom Kang, Se Young Jeong, Seunghwan Lee, Daewon Kang, Minhwan Kwak, Sang Kuk Choi, Mun Cheol Paek, Kwang-Yong Kang

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IRMMW-THz 2008 Terahertz for Life

September 15 – 19, 2008 California Institute of Technology . Pasadena . California

7:00 - 9:00 pm	Banquet	Athenaeum
9:00 - 9:15 pm	Special Thanks and Presentations	Beckman Auditorium
9:15 - 10:00 pm	Special Show by Michael Shermer	Beckman Auditorium

Friday, September 19, 2008

7:45 - 8:30 am	Coffee	Dabney Garden
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Closing Remarks and Announcements

Friday 8:30 - 9:00 am	Beckman Auditorium
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Plenary Talks F1P Chair: Rick Temkin

Friday 9:00 - 10:30 am	Beckman Auditorium
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F1P1.1756 Cosmic Background and Space Science at THz Frequencies **Andrew Lange**

California Institute of Technology, Pasadena, CA 91125, USA

Corresponding author: Andrew Lange, ael@astro.caltech.edu

F1P2.1730 High Frequency Dynamic Nuclear Polarization in Solids and Liquids: Why Two Electrons Are Better Than One

Robert G. Griffin

MIT, Cambridge, MA, USA

Corresponding author: Robert Griffin, rgg@mit.edu

10:30 - 11:00 am	Coffee Break	Dabney Garden
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Session F2A: Gyrotrons 5 Chair: Gregory Denisov

Friday 11:00 - 12:30 pm	Room 155 Arms
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F2A1.1413 Status of the Development of the 2MW, 170GHz Coaxial Cavity Gyrotron for ITER [keynote]

Stefano Alberti¹, Ferran Albajar², Kostas Avramides³, Patrick Benin⁴, William Bin², Tullio Bonicelli⁵, Alex Bruschi¹, Sante Cirant⁶, Emmanuel Droz¹, Oljerd Dumbrajs¹, Damien Fasel¹, Franco Gandini⁵, Timothy Goodman¹, Jean-Philippe Hogge¹, Stefan Illy⁷

¹CRPP/EPFL, Lausanne, Switzerland

²Fusion for Energy, Barcelona, Spain

³NTUA University, Athens, Greece

⁴Thales Electron Devices, Velizy, France

⁵IFP-CNR, Milano, Italy

⁶HUT, Helsinki, Finland

⁷KIT, Karlsruhe, Germany

Corresponding author: Stefano Alberti, stefano.alberti@epfl.ch

F2A2.1347 A Wideband 140-GHz, 1-kW Confocal Gyro-Traveling Wave Amplifier

Colin D Joye, Michael A Shapiro, Jagadishwar R Sirigiri, Richard J Temkin

Massachusetts Institute of Technology, Cambridge, USA

Corresponding author: Colin D Joye, cjoye@alum.mit.edu

F2A3.1207 Operation Improvement of CW 300 GHz Gyrotron FU CW I
Teruo Saito¹, Tomoaki Nakano¹, Yoshinori Tatematsu¹, Seitaro Mitsudo¹, Toshitaka Idehara¹, Vladimir E. Zapevalov²

¹*University of Fukui, Fukui, Japan*

²*Institute of Applied Physics, Nizhny Novgorod, Russia*

Corresponding author: Teruo Saito, saitot@fir.fukui-u.ac.jp

F2A4.1477 The Design of a 390 GHz Gyrotron Based on a Cusp Electron Gun

Fengping Li, Wenglong He, Alan D.R. Phelps, Adrian W. Cross, Craig R. Donaldson, Kevin Ronald

University of Strathclyde, Glasgow, UK

Corresponding author: Fengping Li, fengping.li@strath.ac.uk

Session F2B: Detectors 3

Chair: Boris Karasik

Friday 11:00 - 12:30 pm

Room 201 E. Bridge

F2B1.1564 A CMOS Focal-Plane Array for Terahertz Imaging [keynote]
Ullrich R Pfeiffer¹, Erik Öjefors¹, Alvydas Lisauskas², Diana Glaab², Francesco Voltolina³, Viny M Fonkwe Nzogang³, Peter Haring Bolivar³, Hartmut G Roskos²

¹*High-Frequency & Communication Technology, Univ. of Wuppertal, Wuppertal, Germany*

²*Physikalisches Institut, Johann Wolfgang Goethe-Universität Frankfurt, Frankfurt, Germany*

³*High-Frequency and Quantum Electronics, University of Siegen, Frankfurt, Germany*

Corresponding author: Ullrich R Pfeiffer, ullrich@ieee.org

F2B2.1682 Highly Sensitive and Frequency-Tunable THz Detector Using Carbon Nanotube Quantum Dots

Yukio Kawano, Tomoko Fuse, Seiko Toyokawa, Takeo Uchida, Koji Ishibashi

RIKEN (The Institute of Physical and Chemical Research), 2-1 Hirosawa, Wako, Japan

Corresponding author: Yukio Kawano, ykawano@riken.jp

F2B3.1530 THz Detection by Field Effect Transistors: Antenna and High Magnetic Field Effects

Jerzy Lusakowski¹, Maciej Sakowicz¹, Krzysztof Karpierz¹, Wojciech Knap², Marian Grynberg¹

¹*Institute of Experimental Physics, University of Warsaw, Warsaw, Poland*

²*Research Institute of Electrical Communication, Tohoku University, Sendai, Japan*

Corresponding author: Jerzy Lusakowski, jerzy.lusakowski@fuw.edu.pl

F2B4.1735 Towards Traceable Radiometry in the Terahertz Region
Ralf Müller¹, Heinz-Wilhelm Hübers², Peter Meindl¹, Heiko Richter², Andreas Steiger¹, Lutz Werner¹

¹Physikalisch-Technische Bundesanstalt (PTB), Berlin, Germany

²German Aerospace Center (DLR), Berlin, Germany

Corresponding author: Ralf Müller, ralf.mueller@ptb.de

Session F2G: Microfabrication

Chair: Ken Kreischer

Friday 11:00 - 12:30 pm

Room 22 Gates

F2G1.1741 Micro-fabricated Micro-coaxial Millimeter-wave Components [keynote]

Zoya Popovic¹, Kenneth Vanhille², Negar Ehsan¹, Evan Cullens¹, Yuya Saito¹, Jean-Marc Rollin², Christopher Nichols², David Sherrer², Daniel Fontaine³, Dejan Filipovic¹

¹University of Colorado, Boulder, USA

²Rohm and Haas Electronics, Blacksburg, USA

³BAE Systems, Nashua, USA

Corresponding author: Zoya Popovic, zoya@colorado.edu

F2G2.1761 Deep Reactive Ion Etching Based Silicon Micromachined Components at Terahertz Frequencies for Space Applications

Goutam Chattopadhyay, John S. Ward, Harish Manohara, Risaku Toda

Jet Propulsion Laboratory, California Institute of Technology, Pasadena, USA

Corresponding author: Goutam Chattopadhyay, goutam@jpl.nasa.gov

F2G3.1642 Novel RF MEMS Mechanically Tunable Dielectric Phase Shifter

Nutapong Somjit, Göran Stemme, Joachim Oberhammer

Royal Institute of Technology, Stockholm, Sweden

Corresponding author: Nutapong Somjit, nutapong@ee.kth.se

F2G4.1655 Broadband Complex Permittivity Measurements of Microwave Interconnects and Bonding Materials

Nahid Rahman¹, Konstantin A Korolev¹, Mohammed N Afsar¹, Rudy Cheung², Maurice Aghion²

¹Tufts University, Medford, USA

²Microwave Engineering Corporation, North Andover, USA

Corresponding author: Nahid Rahman, Nahid.Rahman@tufts.edu

Session F2K: Instruments and Techniques **Chair: Daryoosh Saeedkia**

Friday 11:00 - 12:30 pm

Room 119 Kerckhoff

F2K1.1750 THz Spectroscopy in the Lab and at Telescopes [keynote]

Geoffrey A Blake

Caltech, Pasadena, USA

Corresponding author: Geoffrey A Blake, gab@gps.caltech.edu

F2K2.1762 Radiometers for Exploration of Moons of the Outer Planets

Anders Skalare, Goutam Chattopadhyay, Erich Schlecht, John Gill, Mark Allen, Ken Cooper, Samuel Gulkis, Imran Mehdi, Peter Siegel, John Pearson

Jet Propulsion Laboratory, Pasadena, USA

Corresponding author: Anders Skalare, anders.skalare@jpl.nasa.gov

F2K3.1663 CASIMIR: The Caltech Airborne Submillimeter Interstellar Medium Investigations Receiver

Michael L Edgar¹, Andrew I Harris², Alexandre Karpov¹, Sean Lin¹, David Miller¹, Simon J E Radford¹, Frank Rice¹, Jonas Zmuidzinas¹

¹*California Institute of Technology, Pasadena, USA*

²*University of Maryland, College Park, USA*

Corresponding author: Simon J E Radford, sradford@caltech.edu

F2K4.1485 Broadband Antireflective Structures for the THz Spectral Range Fabricated on High Resistive Float Zone Silicon

Claudia Brueckner¹, Thomas Kaesebier², Stefan Riehemann¹, Gunther Notni¹, Ernst-Bernhard Kley², Andreas Tuennermann¹

¹*Fraunhofer Institute for Applied Optics and Precision Engineering, Jena, Germany*

²*FSU Jena, Institute of Applied Physics, Jena, Germany*

Corresponding author: Claudia Brueckner, claudia.brueckner@iof.fraunhofer.de

12:30 - 5:00 pm

JPL Tours

(by pre-registration only)