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FULL TECHNICAL PROGRAM

Monday, August 24, 2015

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[1]Faculty of Physics, Southern Federal University, Russian Federation; [2]Moscow Institute of Physics and Technology, Russian Federation; [3]Institute of Physics, ASCR, Czech Republic; [4]Institute of Geology and Mineralogy, Russian Academy of Sciences, Russian Federation; [5]Institute of Laser Physics, Russian Academy of Sciences, Russian Federation; [6]Kazan Physical-Technical Institute, Russian Academy of Sciences, Russian Federation; [7]Max-Planck-Institut für Festkörperforschung, Germany; [8]1. Physikalisches Institut, Universität Stuttgart, Germany

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[1]M.V.Lomonosov Moscow State University, Russian Federation; [2]University of Regensburg, Germany

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[1]Department of Physics and International Laser Center, Lomonosov Moscow State University, Russian Federation; [2]Department of Physics and International Laser Center, Lomonosov Moscow State University, Moscow, 119, Russian Federation

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[1]University of Leeds, United Kingdom; [2]Rutherford Appleton Laboratory, United Kingdom

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[1]Research Center for Development of Far-Infrared Region, University of Fukui, Japan; [2]Department of Technology, University of Fukui, Japan; [3]National Institute of Materials Physics, Romania; [4]National Institute of Physics, University of Philippines Diliman, Philippines; [5]Department of General Physics, University of Nizhny Novgorod, Russian Federation

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[1]Ecole Polytechnique Federale de Lausanne (EPFL), Centre de Recherches en Physique des Plasmas (CRPP), Switzerland; [2]Institut de Physique Nucléaire (IPN), Orsay, France

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[1]1Center for Free-Electron Laser Science, DESY, Germany; [2]CFEL, DESY, Germany; [3]Department of Electrical Engineering and Computer Science and Research Laboratory of Electronics, MI, United States

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[1]Osaka University, Japan; [2]Screen Holdings, Japan

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[1]Istituto Nazionale di Ricerca Metrologica (INRiM), Italy; [2]Laboratoire national de métrologie et d'essais (LNE), France; [3]Physikalisch-Technische Bundesanstalt (PTB), Germany; [4]Politecnico di Torino, Italy

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Tuesday, August 25, 2015

08:45 - 09:00	**Morning Announcements**	**Lecture Theatre 1**

09:00 - 10:30	**Tuesday Plenary Session** **Chairperson: George Neil**	**Lecture Theatre 1**
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09:45	**Terahertz Quantum Cascade Lasers -- The Past, Present, And Potential Future....236** Edmund Linfield; A Giles Davies; Paul Dean School of Electronic and Electrical Engineering, University of Leeds, United Kingdom	**P4**

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[1]Virginia Diodes, Inc., United States; [2]University of Leeds, United Kingdom; [3]Chalmers University of Technology, Sweden; [4]University Of Leeds, United Kingdom; [5]University of Virginia, United States

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[1]German Aerospace Center, Germany; [2]Humboldt Universität zu Berlin, Germany; [3]Leibniz Institute for Crystal Growth, Germany; [4]Helmholtz-Zentrum Dresden-Rossendorf, Germany; [5]Institute for Physics of Microstructures, Russian Federation

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[1]NEC Corporation, Radio Application, Guidance and Electro-Optics Division, Japan; [2]Nippon Avionics Co., Ltd., Japan; [3]Osaka University, Japan

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[1]IMS Université de Bordeaux UMR CNRS 5218, France; [2]CEA Leti, France

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[1]Fraunhofer IPM, Germany; [2]Becker Photonik GmbH, Germany; [3]University of Siegen, Institute of High Frequency and Quantum Electronics, Germany; [4]SynView GmbH, Germany

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[1]University of Missouri, United States; [2]University of Arkansas, United States

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[1]Research Institute of Superconductor Electronics, Nanjing University, China; [2]Research Institute of Superconductor Electronics, Nanjing University, Japan

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[1]Tianjin University, China; [2]Nanyang Technological University, Singapore; [3]University of Birmingham, United Kingdom; [4]Northwestern University, United States; [5]Tianjin University, Oklahoma State University, China

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[1]French-German Research Institute of Saint-Louis / University of Freiburg, Germany; [2]University of Sydney, Australia; [3]University of Sydney, Institute of Photonics and Optical Science, Australia; [4]University of Freiburg, Germany; [5]French-German Researxh Institute of Saint-Louis, Germany

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[1]Institute of Applied Physics RAS, Russian Federation; [2]Joint Institute for Nuclear Research, Russian Federation

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[1]Japan Atomic Energy Agency, Japan; [2]University of Tsukuba, Japan

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[1]Institute of Laser Engineering, Osaka University, Japan; [2]Center for Energy and Environmental Science, Shinshu University, Japan; [3]Department of Physics, Faculty of Science, Shinshu University, Japan; [4]XLIM, Limoges University, France

Wednesday, August 26, 2015

08:45 - 09:00	**Morning Announcements**	**Lecture Theatre 1**

09:00 - 10:30	**Wednesday Plenary Session** **Chairperson: Kiyomi Sakai**	**Lecture Theatre 1**
09:00	**Imaging Ultrafast Dynamics On The Nanoscale With THz-STM....480** V Jelic[1]; T Cocker[1]; P Nguyen[1]; C Rathje[2]; G Hornig[1]; J Hoffman[1]; H Sharum[1]; R Miller[1]; S Molesky[1]; Margaret Gupta[3]; J Burgess[1]; G De los Reyes[1]; L Titova[1]; C Ropers[2]; Y Tsui[3]; M Freeman[1]; Frank Hegmann[4] [1]Department of Physics, University of Alberta, Edmonton, Canada; [2]4th Physical Institute, University of Göttingen, Germany; [3]Department of Electrical and Computer Engineering, University of Alberta, Canada;[4]University of Alberta, Canada	**P5**
09:45	**It Is Water What Matters: THz Absorption Spectroscopy As A New Tool To Study Solvation Dynamics....482** Martina Havenith Ruhr University Bochum, Germany	**P6**

11:00 - 12:30	**W1A - Metamaterial Structures and Applications IV** **Chairperson: Can-Ming Hu**	**Lecture Theatre 2**
11:00	**Integrated Spoof Surface Plasmon Devices And Circuits....483** Tie Jun Cui Southeast University, China, China	**W1A-1**
11:30	**Total Internal Reflection At Conductive Interfaces: Monolayer Graphene For Terahertz Modulation....485** Xudong Liu; Edward Parrott; Benjamin Ung; Emma Pickwell-MacPherson The Chinese University of Hong Kong, Hong Kong	**W1A-2**
11:45	**Strong Coupling Of Intersubband Resonance In A Single Triangular Well To A THz Metamaterial....487** Shovon Pal; Hanond Nong; Sergej Markmann; Nadezhda Kukharchyk; Sascha R. Valentin; Sven Scholz; Arne Ludwig; Claudia Bock; Ulrich Kunze; Andreas D. Wieck; Nathan Jukam Ruhr University Bochum, Germany	**W1A-3**

12:00	**Direct Observation Of Terahertz Wavefront Converted By A Metal Hole Array....489** Shintaro Hisatake; Hai Huy Nguyen Pham; Tadao Nagatsuma Osaka University, Japan	**W1A-4**
12:15	**Sensitivity Improvement Of Split-Ring Resonators For Thin-Film Sensing Using Floating Electrodes....491** Matthias Maasch; Christian Damm Technische Universität Darmstadt, Germany	**W1A-5**

11:00 - 12:30 **W1B - Metrology II** — **Lecture Theatre 3**

Chairperson: Thomas Kleine-Ostmann

11:00	**Wavefront Measurement Of Terahertz Pulses Using A Hartmann Sensor Combined With 2D Electro-optic Imaging....492** Emmanuel Abraham[1]; Harsono Cahyadi[2]; Jérôme Degert[3]; Eric Freysz[3]; Takeshi Yasui[2] [1]Laboratoire Ondes et MAtière d'Aquitaine, Univ. Bordeaux, France; [2]Univ. Tokushima, Japan; [3]Univ. Bordeaux, France	**W1B-1**
11:45	**Emission Measurement Of A Full Body Mm Wave Scanner....493** Thomas Kleine-Ostmann; Thorsten Schrader Physikalisch-Technische Bundesanstalt (PTB), Germany	**W1B-2**
12:00	**Output Noise Temperature Of A Waveguide Cryogenic Noise Source In W-band....495** Tae Weon Kang; Jeong Hwan Kim; Jae Yong Kwon; No Weon Kang Korea Research Institute of Standards and Science, Korea, Republic of	**W1B-3**
12:15	**Simple De-embedding And Simulation Technique To Find Permittivity With A THz Vector Network Analyser....497** Jonathan Hammler; Andrew Gallant; Claudio Balocco Durham University, United Kingdom	**W1B-4**

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11:30	**Hetero-epitaxial Strain Dependence Of Terahertz Conductivity In NdNiO_3....500** Dhanvir Rana[1]; Rakesh Rana[1]; Parul Pandey[1]; Shriganesh Prabhu[2] [1]Indian Institute of Science Education and Research Bhopal, India; [2]Tata Institute of Fundamental Research Mumbai, India	**W1C-2**

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[1]University of Oxford, United Kingdom; [2]Ecole Polytechnique Federale de Lausanne, Switzerland; [3]École Polytechnique Fedérale de Lausanne, Switzerland; [4]University of Cambrdige, United Kingdom

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[1]SHANGHAI NORMAL UNIVERSITY, China; [2]University of Fukui, Japan; [3]University if the Philippines, Philippines; [4]Saga University, Japan

12:15 **Generation Of Terahertz Radiation In Thin Vanadium Dioxide Films Undergoing Metal-Insulator Phase Transition....504** **W1C-5**

Petr Solyankin[1]; Mikhail Esaulkov[2]; Artem Sidorov[1]; Alexander Shkurinov[1]; Qin Luo[3]; Xi-Cheng Zhang[4]
[1]Lomonosov Moscow State University, Russian Federation; [2]Institute on Laser and Information Technologies of the RAS, Russian Federation; [3]Huazhong University of Science and Technology, China;[4]University of Rochester, United States

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11:00 - 12:30 **W1D - Sources, Detectors, and Receivers V** **Lecture Theatre 6**

Chairperson: Gun-Sik Park

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Brian Pepper; Charles Bradford; Theodore Reck; Pierre Echternach
Jet Propulsion Laboratory, United States

11:30 **THz Emission From Grating-coupled AlGaN/GaN Heterostructures: Comparison Between Plasmonic And Thermal Emission....509** **W1D-2**

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[1]Center for Physical Sciences and Technology, Lithuania; [2]Swinburne University of Technology, Australia;[3]Institute of High Pressure Physics UNIPRESS, Poland

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Hiroshi Ito[1]; Tadao Ishibashi[2]
[1]Kitasato University, Japan; [2]NTT Electronics Techno Corporation, Japan

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14:00 - 15:30	W2A - Applications in Biology and Medicine II	Lecture Theatre 2
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Yiwen Sun[1]; Junlan Zhong[2]; Shengxin Yang[2]
[1]Shenzhen University, China; [2]Department of Biomedical Engineering, School of Medicine, Shenzhen University, China

15:00 **Modulation Of The Hydration Water Around Monoclonal Antibodies On Addition Of Excipients Detected By Terahertz-time Domain Spectroscopy....530** **W2A-4**

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[1]University of Western Australia, Australia; [2]Medimmune, United Kingdom; [3]University of Sheffield, United Kingdom; [4]University of Cambridge, United Kingdom

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[1]Waseda University, Japan; [2]National Institute of Information and Communications Technology, Japan

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Tyler Bowman[1]; Yuhao Wu[1]; Alec Walter[1]; John Gauch[1]; Magda El-Shenawee[1]; Lucas Campbell[2]
[1]University of Arkansas, United States; [2]Northwest Arkansas Pathology Associates, United States

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University of California - Los Angeles, United States

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[1]Tata Institute of Fundamental Research, India; [2]Max-Planck Institute for the Science of Light, Erlangen, Germany; [3]Technische Universität Darmstadt, Germany

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Electronics and Telecommunications Research Institute, Korea, Republic of

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Hou-Tong Chen[1]; Li Huang[2]; Abul Azad[1]; Toni Taylor[1]
[1]Los Alamos National Laboratory, United States; [2]Harbin Institute of Technology, China

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Shanghai Institute of Technical Physics, China

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[1]Durham University, School of Engineering and Computing Sciences, United Kingdom; [2]School of Engineering and Computing Sciences, Durham University, United Kingdom; [3]School of Engineering and Computing Sciences, United Kingdom

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[1]University of California Los Angeles, United States; [2]University of Michigan Ann Arbor, United States;[3]Michigan State University, United States

14:00 - 15:30 **W2E - Gyro-Oscillators and Amplifiers III** **Lecture Theatre 7**

Chairperson: Alexander Litvak

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Karlsruhe Institute of Technology, Germany

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Toshitaka Idehara
FIR Center, University of Fukui, Japan

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[1]Moscow Institute of Physics and Technology, Russian Federation; [2]Faculty of Physics, Southern Federal University, Russian Federation; [3]Institute of Physics, ASCR, Czech Republic; [4]Leibniz Institute for Solid State and Materials Research Dresden, Germany; [5]Scientific Center of Russian Federation Research Institute for Genetics and Selection of Industrial, Russian Federation; [6]1. Physikalisches Institut, Universität Stuttgart, Germany

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[1]The Hebrew University of Jerusalem, Israel; [2]Nagoya University, Japan

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[1]Universidad Carlos III de Madrid, Spain; [2]Aalto University, Finland; [3]Technische Universität Darmstadt, Germany

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[1]Institute of Applied Physics and Computational Mathematics, China; [2]Institute of Applied Electronics, CAEP, China; [3]Peking University, China

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[1]Budker Institute of Nuclear Physics, Russian Federation; [2]Budker institute of Nuclear Physics, Russian Federation; [3]Institute of Applied Physics, Russian Federation

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[1]Tohoku University, Japan; [2]Institut d'Electronique, de Microélectronique et de Nanotechnologie, France;[3]Université Montpellier 2 - CNRS, France; [4]RIKEN Sendai, Japan; [5]Kotelnikov Institute of Radio Engineering and Electronics (Saratov Branch), Russian Federation; [6]Universidad de Salamanca, Spain

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Thursday, August 27, 2015

08:45 - 09:00	**Morning Announcements**	**Lecture Theatre 1**

09:00 - 10:30	**Thursday Plenary Session** **Chairperson: Xi-Cheng Zhang**	**Lecture Theatre 1**
09:00	**SubTHz Photons In The Universe And In My Life....727** Philippe Goy AB Millimetre, France	**P7**
09:45	**Frontiers Of Sub-cycle Terahertz Science: The Fast, The Strong And The Small....731** Matthias Hohenleutner; Fabian Langer; Olaf Schubert; Sebastian Baierl; Thomas Maag; Christoph Lange; Michael Porer; Christoph Pöllmann; Philipp Steinleitner; Max Eisele; Markus A. Huber; Markus Plankl; Tyler L. Cocker; Rupert Huber University of Regensburg, Germany	**P8**

11:00 - 12:30	**H1A - Applications in Biology and Medicine - Applications in Industry** **Chairperson: Danniel Mittleman**	**Lecture Theatre 2**
11:00	**Large-Area Transmission And Reflection Imaging With 640x480 Pixel Terahertz Camera....735** Tsutomu Ishi; Takao Morimoto; Takayuki Sudou; Naoki Oda NEC Corporation, Japan	**HA1-1**
11:15	**The Analysis Of Hydration Processes In Porous Materials Using Terahertz Pulsed Imaging....737** Samy Yassin; Kirby Lam; Edward Kwok; Lynn Gladden; Axel Zeitler University of Cambridge, United Kingdom	**HA1-2**
11:30	**An Evolutionary Algorithm Based Approach To Improve The Limits Of Minimum Thickness Measurements Of Multilayered Automotive Paints....739** Soufiene Krimi[1]; Jens Klier[1]; Joachim Jonuscheit[1]; René Beigang[2]; Ralph Urbansky[3]; Frank Ellrich[1]; Georg von Freymann[1] [1]Fraunhofer Institute for Physical Measurement Techniques IPM, Germany; [2]University of Kaiserslautern, Department of Physics and Research Center, Germany; [3]University of Kaiserslautern, Department of Communications Engineering, Germany	**HA1-3**

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[1]Protemics GmbH, Germany; [2]ECN Solar Energy, Netherlands

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[1]University of Cambridge, United Kingdom; [2]University of Liverpool, United Kingdom

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11:00 - 12:30 **H1B - Quantum Cascade Lasers II** **Lecture Theatre 3**

Chairperson: Juncheng Cao

11:30 **Double Pulse Injection Seeding Of A Terahertz Quantum Cascade Laser....746** **H1B-2**

Sergej Markmann[1]; Hanond Nong[1]; Shovon Pal[2]; Negar Hekmat[1]; Sven Scholz[1]; Nadezhda Kukharchyk[1]; Arne Ludwig[1]; Sukhdeep Dhillon[3]; Xavier Marcadet[4]; Claudia Bock[1]; Ulrich Kunze[1]; Andreas D. Wieck[1]; Nathan Jukam[1]
[1]Ruhr-Universität Bochum, Germany; [2]University of Leeds, Germany; [3]Ecole Normale Superieure, France;[4]Alcatel-Thales III-V Lab, France

11:45 **Far-field Engineering Of Metal-metal Terahertz Quantum Cascade Lasers With Integrated Horn Antennas....748** **H1B-3**

Feihu Wang[1]; Iman Kundu[2]; Lianhe Li[2]; Edmund Linfield[2]; Giles Davies[2]; Souad Moumdji[3]; Raffaele Colombelli[3]; Juliette Mangeney[1]; Jerome Tignon[1]; Sukhdeep Dhillon[1]
[1]Ecole Normale Superieure/CNRS, France; [2]University of Leeds, United Kingdom; [3]University Paris Sud, France

12:00	**Efficient Terahertz-wave Generation In Mid-infrared Quantum-cascade Lasers With A Common Dual-upper-state Active Region....749** Kazuue Fujita[1]; Akio Ito[1]; Masahiro Hitaka[1]; Tatsuo Dougakiuchi[1]; Tadataka Edamura[1]; Masamichi Yamanishi[1]; Seungyong Jung[2]; Mikhail Belkin[2] [1]Hamamatsu Photonics K.K., Japan; [2]The University of Texas at Austin, United States	**H1B-4**

11:00 - 12:30	**H1C - Modeling and Analysis Techniques I** **Chairperson: Chao Zhang**	**Lecture Theatre 4**
11:00	**Modulation Of Terahertz Radiation Based On Dc-ac-field Tuned Coherent Dynamics Of Dipolaritons....751** Wei Zhang Institute of Applied Physics and Computational Mathematics, China	**H1C-1**
11:15	**Steady-State Thermal Analysis Of An Integrated 160 GHz Balanced Quadrupler Based On Quasi-Vertical Schottky Diodes....753** Souheil Nadri; Linli Xie; Naser Alijabbari; John Gaskins; Brian Foley; Patrick Hopkins; Robert Weikle University of Virginia, United States	**H1C-2**
11:30	**Comparison Of Model-Based Material Parameter Extraction In Frequency- And Time-Domain....755** Daniel Stock; Peter Haring Bolívar University of Siegen - High Frequency and Quantum Electronics, Germany	**H1C-3**
11:45	**A Network Formulation For Characterization Of Plasmonic Interactions In A Semiconductor Nanodimer....757** Thomas T Y Wong[1]; Zhijing Hu[1]; Tao Shen[2]; Yanlin Li[1] [1]Illinois Institute of Technology, United States; [2]Kunming University of Science and Technology, China	**H1C-4**
12:00	**Hybrid Analysis Of Terahertz Photoconductive Antennas Using Energy Balance Transport Model....759** Ramin Emadi; Navid Barani; Asad Amirhosseini; Reza Safian Isfahan University of Technology, Iran	**H1C-5**
12:15	**Theory And Simulation Of A Terahertz Single Grating Rectangular Waveguide Back-ward Wave Oscillator....761** Wenqiu Xie; Zi-Cheng Wang; Jirun Luo; Ding Zhao Institute of Electronics, Chinese Academy of Sciences;University of Chinese Academy of Sciences, Bei, China	**H1C-6**

11:00 - 12:30	H1D - Sources, Detectors, and Receivers VII Chairperson: Peiheng Wu	Lecture Theatre 6

11:00	**Emission And Detection Of Terahertz Radiation In Double-Graphene-Layer Van Der Waals Heterostructures....763** Stephane Boubanga Tombet[1]; Deepika Yadav[2]; Stevanus Arnold[1]; Takayuki Watanabe[1]; Victor Ryzhii[1]; Taichii Otsuji[1] [1]Tohoku University, Research Institute of Electrical Communication, Japan; [2]Research Institute of Electrical Communication, Tohoku University, Japan	**H1D-1**
11:30	**Fast Pyroelectric Response Of Semiconducting YBaCuO Detectors With High IR Sensitivity; Development Of THz Imaging Arrays....764** Xavier Galiano[1]; Annick Dégardin[1]; Vishal Jagtap[2]; Alain Kreisler[1] [1]UPMC; CentraleSupelec / GeePs, France; [2]CentraleSupelec / GeePs, France	**H1D-2**
11:45	**500 GHz Sensor System In SiGe For Gas Spectroscopy....766** Klaus Schmalz[1]; Philipp Neumaier[2]; Ruoyu Wang[1]; Johannes Borngräber[1]; Wojciech Debski[3]; Mehmet Kaynak[1]; Dietmar Kissinger[1]; Heinz-Wilhelm Hübers[2] [1]IHP, Germany; [2]Deutsches Zentrum für Luft- und Raumfahrt (DLR), Germany; [3]Silicon Radar, Germany	**H1D-3**
12:00	**A Turn-key Cryogenic Superconducting Bolometer Detector System....768** Adam Woodcraft[1]; Peter Ade[2]; James Cox[1]; Chris Dunscombe[2]; Rashmi Sudiwala[2]; Tyrone Jones[1]; Ken Wood[1] [1]QMC Instruments Ltd., United Kingdom; [2]Cardiff University, United Kingdom	**H1D-4**
12:15	**Antenna-Coupled Microcavity Enhanced THz Photodetectors....770** Daniele Palaferri[1]; Yanko Todorov[1]; Stefano Barbieri[2]; Djamal Gacemi[2]; Yuk Nga Chen[1]; Angela Vasanelli[1]; Lianhe Li[3]; Giles Davies[3]; Edmund Linfield[3]; Carlo Sirtori[1] [1]Laboratoire Matériaux et Phénomènes Quantiques, Université Paris Diderot - CNRS UMR 7162, 75205 Pari, France; [2]University Paris Diderot, France; [3]School of Electronic and Electrical Engineering, University of Leeds, Leeds LS2 9JT, United Kingdom	**H1D-5**

11:00 - 12:30	H1E - Gyro-Oscillators and Amplifiers IV Chairperson: Manfred Thumm	Lecture Theatre 7
11:00	**Recent Experimental Results Of The European 1MW, 170 GHz Short-Pulse Gyrotron Prototype For ITER....772** Tomasz Rzesnicki[1]; Ioannis Gr. Pagonakis[1]; Andrey Samartsev[1]; Kostantinos Avramidis[1]; Gerd Gantenbein[1]; Stefan Illy[1]; John Jelonnek[1]; Jianbo Jin[1]; Carsten Lechte[2]; Markus Losert[1]; Bernhard Piosczyk[1]; Manfred Thumm[1] [1]Karlsruhe Institute of Technology, Germany; [2]University of Stuttgart, Germany	H1E-1
11:15	**Development Of A High Power 300 GHz Band Gyrotron For Practical Use In Collective Thomson Scattering Diagnostics In LHD....774** Teruo Saito[1]; Jun Kasa[1]; Yuusuke Yamaguchi[1]; Yoshinori Tatematsu[1]; Masaki Kotera[1]; Shin Kubo[2]; Takashi Shimozuma[2]; Kenji Tanaka[2]; Masaki Nishiura[3] [1]University of Fukui, Japan; [2]National Institute for Fusion Science, Japan; [3]The University of Tokyo, Japan	H1E-2
11:30	**Novel Self-consistent Linear Theory Of A Gyrotron Oscillator And Experimental Validation....776** Stefano Alberti; Jeremy Genoud; Falk Braunmueller; Jean-Philippe Hogge; Minh Quang Tran; Trach Minh Tran Ecole Polytechnique Federale Lausanne, Switzerland	H1E-3
11:45	**Further Experiments Of A W-band Gyro-TWA Based On A Helically Corrugated Interaction Region....778** Wenlong He; Craig Donaldson; Liang Zhang; Paul McElhinney; Huabi Yin; Jason Garner; Kevin Ronald; Adrian Cross; Alan Phelps Department of Physics, SUPA, University of Strathclyde, United Kingdom	H1E-4
12:00	**Development Status Of Gyrotron Setup For ITER ECW System....780** Grigory Denisov; Alexander Litvak Institute of Applied Physics, Russian Federation	H1E-5

14:00 - 15:30	H2A - Protein Dynamics and Molecular Spectroscopy - Spectroscopy of Gases, Liquids, and Solids Chairperson: Axel Zeitler	Lecture Theatre 2
14:00	**Terahertz Dynamics Of Amorphous (Bio)Pharmaceutical Mixtures....782** Juraj Sibik; Axel Zeitler University of Cambridge, United Kingdom	H2A-1
14:30	**Spatiotemporal Features Of Nucleic Acid Hydration And Their Changes During Denaturation Revealed By THz Spectroscopy....784** Heyjin Son[1]; Jinyoung Jung[1]; Sunmyoung Kim[1]; Jaehun Park[2]; Jungmin Jang[1]; Kihoon Eom[1]; Inkyung Park[1]; Gun-Sik Park[1] [1]Seoul National University, Korea, Republic of; [2]Pohang Accelerator Laboratory, Korea, Republic of	H2A-2

14:45 **Low-frequency Vibrational Dynamics Of Poly(lactic Acid) Stereocomplex Studied By THz Spectroscopy And Solid-state DFT Simulation....786** **H2A-3**

Feng Zhang[1]; Keisuke Tominaga[1]; Michitoshi Hayashi[2]; Houng-Wei Wang[2]; Takashi Nishino[3]
[1]Molecular Photoscience Research Center, Kobe University, Japan; [2]Center for Condensed Matter Sciences, National Taiwan University, Taiwan; [3]Department of Chemical Science and Engineering, Graduate School of Engineering, Kobe University, Japan

15:00 **Accelerated Terahertz Water Dynamics Under Osmotic Interaction Of Lipid Bilayers And Polyethylene Glycol....788** **H2A-4**

Kihoon Eom; Heyjin Son; Jin-Young Jeong; Jungmin Jang; In-Kyung Park; Seonmyeong Kim; Gun-Sik Park
Seoul National University, Korea, Republic of

15:15 **Sensitive Analytical Gas Spectroscopy Based On Free-electron Laser And Multistage Tunable Fabry-Perot Interferometer....790** **H2A-5**

Vitaly Kubarev
Budker Institute of Nuclear Physics, Russian Federation

14:00 - 15:30 **H2B - High-Field THz Wave Generation and Nonlinear THz Physics III** **Lecture Theatre 3**

Chairperson: Dino Jaroszynski

14:00 **Effect Of Nonlinearity On Surface Plasmon Polaritons In Graphene In The Terahertz Region....791** **H2B-1**

Matthew Sanderson; Yee Sin Ang; Chao Zhang
Wollongong University, Australia

14:30 **Out-of-plane THz Electric Field Enhancement In Vertical Nano-slit Arrays....792** **H2B-2**

Yannik Waeber[1]; Salvatore Bagiante[2]; Justyna Fabianska[1]; Thomas Feurer[1]; Hans-Christian Sigg[2]
[1]Institute of Applied Physics - University of Bern, Switzerland; [2]Paul Scherrer Institute, Switzerland

14:45 **Ultrafast Electron Field Emission From Gold Resonant Antennas Studied By Two Terahertz Pulse Experiments....794** **H2B-3**

Krzysztof Iwaszczuk; Maksim Zalkovskij; Andrew Strikwerda; Peter Jepsen
DTU Fotonik, Denmark

15:00 **High Power Terahertz Emission At Plasma And Double Plasma Frequencies During REB-Plasma Interaction....795** **H2B-4**

Andrey Arzhannikov[1]; Alexandr Burdakov[2]; Vladimir Burmasov[2]; Ivan Ivanov[2]; Alexandr Kasatov[2]; Sergey Kuznetsov[2]; Maksim Makarov[2]; Konstantin Mekler[2]; Sergey Polosatkin[2]; Vladimir Postupaev[2]; Andrey Rovenskikh[2]; Stanislav Sinitsky[2]; Vladislav Sklyarov[2]; Vasilii Stepanov[2]; Igor Timofeev[2]; Leonid Vyacheslavovj[2]
[1]Novosibirsk State University, Russian Federation; [2]Budker Institute of Nuclear Physics, Russian Federation

15:15 **Optical Depolarization In Liquids And Second Harmonic Generation From The Surface Induced By Intense THz Pulses....797** **H2B-5**

Sergey Bodrov; Aleksey Murzanev; Yury Sergeev; Yury Malkov; Andrey Stepanov
Institute of Applied Physics of the Russian Academy of Sciences, Russian Federation

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14:00 - 15:30 **H2C - Metamaterial Structures and Applications VI** **Lecture Theatre 4**

Chairperson: Yusuke Kajihara

14:00 **Epsilon-Near-Zero Lens For Beamshaping Of Sub-Terahertz Waves....799** **H2C-1**

Víctor Torres[1]; Víctor Pacheco-Peña[1]; Bakhtiyar Orazbayev[1]; Jorge Teniente[1]; Miguel Beruete[1]; Miguel Navarro-Cia[2]; Mario Sorolla[1]; Nader Engheta[3]
[1]Universidad Pública de Navarra, Spain; [2]Imperial College London, United Kingdom; [3]University of Pennsylvania, United States

14:15 **Active Modulation Of Terahertz Wavefront....801** **H2C-2**

Yan Zhang[1]; Xinke Wang[1]; Jingwen He[2]; Zhenwei Xie[2]
[1]Capital Normal University, China; [2]Harbin Institute of Technology, China

14:30 **Time-domain High-speed Read-out Of Terahertz Resonator Arrays With Sub-single-resonator Resolution....802** **H2C-3**

Michael Nagel; Christopher Matheisen; Simon Sawallich
Protemics GmbH, Germany

14:45 **Plasmonic Metasurfaces: From Perfect Absorption To Phase Modulation....804** **H2C-4**

Jiaming Hao
National Laboratory for Infrared Physics, Shanghai Institute of Technical Physics, Chinese Academy o, China

15:00 **Flexible Film With Paired Cut Wires For A Uniquely High FOM Above 300....805** **H2C-5**

Koki Ishihara; Yuki Takebayashi; Takehito Suzuki
Ibaraki University/Major in Electrical and Electronic Engineering, The Graduate School of Science an, Japan

15:15 **Launching Terahertz Surface Wave With Desired Directions....807** **H2C-6**

Xueqian Zhang[1]; Yuehong Xu[1]; Zhen Tian[1]; Jianqiang Gu[1]; Chunmei Ouyang[1]; Weili Zhang[2]; Jiaguang Han[1]
[1]Center for Terahertz Waves of Tianjin University, China; [2]School of Electrical and Computer Engineering, Oklahoma State University, United States

14:00 - 15:30	H2D - Sources, Detectors, and Receivers VIII	Lecture Theatre 6

Chairperson: Gerd Gantenbein

14:00	**Superconducting Detectors For Terahertz Imaging....809** Jian Chen Nanjing University, China	**H2D-1**
14:30	**First Absolute Power Measurement Of A Terahertz Time Domain Spectroscopy System Based On InGaAs/InAlAs Photoconductors....811** Björn Globisch[1]; Roman J. B. Dietz[1]; Andreas Steiger[2]; Werner Bohmeyer[3]; Thorsten Göbel[1]; Martin Schell[1] [1]Fraunhofer Heinrich Hertz Institute, Germany; [2]Physikalisch-Technische Bundesanstalt PTB, Germany;[3]Sensor- und Lasertechnik, Germany	**H2D-2**
14:45	**Sub-THz/THz Amplification In A Semiconductor Superlattice....813** Alexander Hramov[1]; Vladimir Makarov[2]; Alexey Koronovskii[3]; Kirill Alekseev[4]; Vladimir Maximenko[2]; Nikita Frolov[2]; Mark Greenaway[5]; Mark Fromhold[5]; Olga Moskalenko[2]; Alexander Balanov[4] [1]Saratov State Technical University, Russian Federation; [2]REC 'Nonlinear Dynamics of Complex Systems', Saratov State Technical University, Russian Federation; [3]Faculty of Nonlinear Processes, Saratov State University, Russian Federation; [4]Department of Physics, Loughborough University, United Kingdom;[5]School of Physics and Astronomy, University of Nottingham, United Kingdom	**H2D-3**
15:00	**Nanostructured Interdigitated Electrodes For Microlensless Photoconductive Terahertz Emitters....815** Abhishek Singh[1]; S. S. Prabhu[2] [1]Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Germany;[2]Tata Institute of Fundamental Research, India	**H2D-4**
15:15	**High Quality Beams Of MV/cm THz Pulses Generated From DSTMS....817** Pernille Klarskov; Peter Uhd Jepsen Technical University of Denmark, Denmark	**H2D-5**

14:00 - 15:30	H2E - Laser Driven THz Sources II	Lecture Theatre 7

Chairperson: Richard J. Temkin

14:00	**Coherent Radiation Sources Based On Laser Driven Plasma Waves....818** Dino Jaroszynski University of Strathclyde	**H2E-1**
14:30	**Tunability Enhancement Of Injection-seeded THz Parametric Generator....822** Kosuke Murate[1]; Kazuki Imayama[1]; Shin'ichiro Hayashi[2]; Kodo Kawase[1] [1]Nagoya University, Japan; [2]RIKEN, Japan	**H2E-2**

14:45 **Terahertz Wave Emission From Dual Color Laser-Induced Microplasma....824** **H2E-3**

Fabrizio Buccheri; Xi-Cheng Zhang
University of Rochester, United States

15:00 **Studies Of Powerful Terahertz Radiation From Laser-Produced Plasmas....826** **H2E-4**

Yutong Li; Guoqian Liao
Institute of Physics, Chinese Academy of Sciences, China

15:15 **Study Of THz Emission From Ring-Airy Beam Induced Plasma....828** **H2E-5**

Kang Liu[1]; Dimitrios Papazoglou[2]; Anastasios Koulouklidis[2]; Stelios Tzortzakis[2]; Xi-Cheng Zhang[1]
[1]University of Rochester, United States; [2]Foundation for Research and Technology Hellas, Greece

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16:00 - 17:30 **H3A - Laser Driven THz Sources III** **Lecture Theatre 2**

Chairperson: George Neil

16:00 **THz Emission From Graphene Induced By Dynamical Photon Drag....830** **H3A-1**

Juliette Mangeney[1]; Jean Maysonnave[1]; Simon Huppert[2]; Feihu Wang[1]; Claire Berger[3]; de Heer Walt[4]; Ted Norris[5]; Louis-Anne De Vaulchier[1]; Sukhdeep Dhillon[1]; Jerome Tignon[1]; Robson Ferreira[1]
[1]CNRS/LPA, France; [2]CNRS/MPQ, France; [3]School of Physics, Georgia Institute of Technology, Atlanta,, United States; [4]School of Physics, Georgia Institute of Technology, Atlanta, Georgia, United States; [5]Center for Ultrafast Optical Science, University of Michigan, United States

16:30 **Ultra-intense Laser-Driven Target Normal Sheath Radiation In The Terahertz Region....831** **H3A-2**

Zhan Jin[1]; HongBin Zhuo[2]; Junghun Shin[1]; Noburo Yugami[3]; MingYang Yu[4]; ZhengMing Sheng[5]; Ryosuke Kodama[1]
[1]Osaka University, Japan; [2]College of Science, National University of Defense Technology, China;[3]Utsunomiya University, Japan; [4]Zhejiang University, China; [5]Shanghai Jiao Tong University, China

16:45 **Optical Generation Of Terahertz Based On All Fiber Highly Coherent Optical Parametric Light Source....833** **H3A-3**

Sigang Yang; Xiaojian Wang; Chen Jin; Donghui Jin; Hongwei Chen; Minghua Chen; Shizhong Xie; Sigang Yang
Tsinghua University, China

17:00 **Simulation Of Laser Pulse Driven Terahertz Generation In Corrugated Plasma Channels....835** **H3A-4**

Chenlong Miao[1]; John Palastro[2]; Andrew Pearson[1]; Thomas Antonsen[1]
[1]Insititute for Research in Electronics and Applied Physics, University of Maryland, College Park 207, United States; [2]Icarus Research, Inc., Bethesda, Maryland 20824, United States

17:15 **Spectrum And Polarization Of THz Radiation From Two-color Femtosecond Laser Breakdown: Theory And Experiment....837** **H3A-5**

Mikhail Esaulkov[1]; Vera Andreeva[2]; Vladimir Makarov[2]; Petr Solyankin[2]; Alexander Shkurinov[2]; Olga Kosareva[2]; Nikolay Panov[2]; Daniil Shipilo[2]
[1]Institute on Laser and Information Technologies of the Russian Academy of Sciencies (ILIT RAS), Russian Federation; [2]Physics Department and International Laser Center of M.V. Lomonosov Moscow State University, Russian Federation

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16:00 - 17:30 **H3B - Spectroscopy and Material Properties** **Lecture Theatre 3**

Chairperson: Vincent Wallace

16:00 **Magnon Polariton And Psudo-Magnon-Polariton....839** **H3B-1**

Can-Ming Hu[1]; Bimu Yao[2]; Sandeep Kaur[1]; Yongshen Gui[1]; Wei Lu[2]
[1]University of Manitoba, Canada; [2]National Laboratory for Infrared Physics, Chinese Academy of Sciences, China

16:30 **THz Emission From InP And InGaAs Nanowires Fabricated Using Electron Beam Lithography....842** **H3B-2**

Soner Balci[1]; Ju-Hyung Kim[1]; David Czaplewski[2]; Il Woong Jung[2]; Fariba Hatami[3]; Patrick Kung[1]; Seongsin Margaret Kim[1]
[1]University of Alabama, Electrical and Computer Engineering, United States; [2]Center for Nanoscale Materials, Argonne National Laboratory, United States; [3]Department Physics, Humboldt University, Germany

16:45 **THz Near-field Nanoscopy Of Graphene Layers....844** **H3B-3**

Damien Ducatteau; Jean-Francois Lampin; Dominique Vignaud; Geetanjali Deokar; Antoine Pagies
IEMN, France

17:00 **Charge Carrier Dynamics In Benzoporphyrin Thin Films Investigated By Time-Resolved THz Spectroscopy....846** **H3B-4**

Kaoru Ohta[1]; Sho Hiraoka[2]; Yuto Tamura[3]; Hiroko Yamada[3]; Keisuke Tominaga[4]
[1]Molecular Photoscience Research Center, Kobe University, Japan; [2]Graduate School of Science, Kobe University, Japan; [3]Graduate School of Materials Science, Nara Institute of Science and Technology, Japan;[4]Molecular Photoscience Research Center, Graduate School of Science, Kobe University, Japan

17:15 **Magnetic Field Induced Spin Reorientation Transition In YFeO3 Probed With THz Spectroscopy....848** **H3B-5**

GuoHong Ma; Junjie Jiang
Shanghai University, China

16:00 - 17:30	**H3C - Applications in Security and Defense - Applications in Art Conservation studies** **Chairperson: Zengxiu Zhao**	**Lecture Theatre 4**
16:00	**Terahertz Time-domain Imaging Of A 17th Century Lacquered Cabinet: A Contribution To European Lacquerwares Characterization....849** Corinna Ludovica Koch Dandolo[1]; Vincent Cattersel[2]; Peter Uhd Jepsen[1] [1]DTU Fotonik, Denmark; [2]Department Conservation Studies, research group Heritage and Sustainability, University of Antwerp, Belgium	**H3C-1**
16:15	**Cyclododecane As A Reversible Contrast Enhancer For The Terahertz Imaging Of Frescos....851** J. Bianca Jackson[1]; Tom Owen[1]; Gillian Walker[1]; John Bowen[1]; David Giovannacci[2]; Dominique Martos-Levif[2]; Vincent Detalle[2] [1]University of Reading, United Kingdom; [2]Laboratoire de Recherche des Monuments Historique, France	**H3C-2**
16:30	**Terahertz Time Of Flight Imaging Of Hidden Layers In Oleo Paintings...853** A. M. Gomez-Sepulveda[1]; A. I. Hernandez-Serrano[2]; E. Castro-Camus[2] [1]Escuela de Conservación y Restauración de Occidente Secretaría de Innovación, Ciencia y Tecnología, Mexico; [2]Centro de Investigaciones en Optica, A. C., Mexico	**H3C-3**
16:45	**Non-destructive Inspection Of Chemicals In Mail Envelopes Using An Injection-seeded Terahertz-wave Parametric Generator....854** Ryo Yamazaki; Mikiya Kato; Kosuke Murate; Kazuki Imayama; Kodo Kawase Nagoya University, Japan	**H3C-4**
17:00	**On The Development Of A Quasi-optical System For Short And Long Range Standoff Imagers....856** Erio Gandini[1]; Jan Svedin[2]; Tomas Bryllert[3]; Nuria Llombart[1] [1]Delft University of Technology, Netherlands; [2]Swedish Defence Research Agency, FOI, Sweden;[3]Chalmers University of Technology, Sweden	**H3C-5**
16:00 - 17:30	**H3D - Devices, Components, and Systems V** **Chairperson: Gun Sik Park**	**Lecture Theatre 6**
16:00	**Rapid Prototyping Lightweight Millimeter Wave Antenna And Waveguide With Copper Plating....857** Ruoyu Zhu; Danial Marks Duke University, United States	**H3D-1**
16:15	**High Efficiency Superconducting Nanowire Single Photon Detector At Wavelength 940 Nm....859** Yajun Chen; Min Gu; Labao Zhang; Lin Kang; Peiheng Wu Nanjing University, China	**H3D-2**

16:30 **An Active Terahertz Magneto-plasmonic Device Based On A Cobalt Aperture Array....860** **H3D-3**

Barun Gupta; Shashank Pandey; Ajay Nahata
University of Utah, United States

16:45 **Ultra-high Extinction Tri-layer Thin-film Wire-grid THz Polarizer....861** **H3D-4**

Zhe Huang[1]; Hau Ping Chan[1]; Edward Philip John Parrott[2]; Yuk Tak Chow[1]; Emma Pickwell-MacPherson[2]
[1]City University of Hong Kong, Hong Kong; [2]Chinese University of Hong Kong, Hong Kong

17:00 **Passive Electric Monopole Array For Terahertz Surface Wave Launcher....862** **H3D-5**

Daniel Headland[1]; Mohammad Taha[2]; Philipp Gutruf[2]; Withawat Withayachumnankul[1]; Madhu Bhaskaran[2]; Christophe Fumeaux[1]; Derek Abbott[1]; Sharath Sriram[2]
[1]The University of Adelaide, Australia; [2]RMIT University, Australia

17:15 **A 4-Way 0.11THz Power Synthesizer Based On IMPATT Source....864** **H3D-6**

Zhongbo Zhu; Xiaojun Li; Qinggui Tan; Wei Jiang; Dong Liang; Shuantao Li
National Key Laboratory of Science and Technology on Space Microwave, China

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16:00 - 17:30 **H3E - Astronomy and Environmental Science - Planetary and Earth Science Applications** **Lecture Theatre 7**

Chairperson: Kiyomi Sakai

16:00 **The Development Of Infrared Remote Sensors For Chinese Meteorological Satellites....866** **H3E-1**

Lei Ding[1]; Wei Lu[2]
[1]Shanghai Institute of Technical Physics, CAS, China; [2]Shanghai Institute of Technical Physics, CAS, China

16:30 **SPACEKIDS: Kinetic Inductance Detector Arrays For Space Applications....867** **H3E-2**

Matt Griffin[1]; Jochem Baselmans[2]; Andrey Baryshev[3]; Simon Doyle[1]; Martin Grim[3]; Peter Hargrave[1]; Teun Klapwijk[3]; Jesus Martin-Pintado[4]; Alessandro Monfardini[5]; Andrea Neto[6]; Henk Steenbeck[7]; Ian Walker[8]; Ken Wood[9]; Antonio D'Addabbo[5]; Pete Barry[1]; Aurelien Bideaud[1]; Beatriz Blázquez[6]; Juan Bueno[3]; Jose-Luis Costa-Kramer[10]; Lerenza Ferrari[3]; Alicia Gómez-Gutiérrez[10]; Johannes Goupy[6]; Nuria Llombart[6]; Stephen Yates[3]
[1]Cardiff University, United Kingdom; [2]SRON, Netherlands; [3]SRON, Netherlands, Netherlands; [4]CSIC, Madrid, Spain; [5]Institut Neel, Grenoble, France; [6]TU Delft, Netherlands; [7]AIM Valley B. V., Netherlands;[8]Cardiff Unversity, United Kingdom; [9]QMC Instrumetns Ltd., United Kingdom; [10]CSIC,Madrid, Spain

16:45 **10 Meter Sub-Orbital Large Balloon Reflector (LBR)....869** **H3E-3**

David Lesser[1]; Chris Walker[1]; Stefan O'Dougherty[1]; Brandon Swift[1]; Paul Goldsmith[2]; I. Steve Smith[3]; Casey Honniball[1]; Jenna Kloosterman[2]; Abram Young[1]; Bill Peters[1]; Craig Kulesa[1]; Bill Perry[3]; James Noll[3]; Pietro Bernasconi[4]; Chris Groppi[5]; Hamdi Mani[5]; Brian Duffy[1]
[1]University of Arizona, United States; [2]NASA JPL, United States; [3]SWRI, United States; [4]JHUAPL, United States; [5]Arizona State University, United States

17:00 **Terahertz Limb Sounder To Measure Winds And Temperature Above 100 Km....871** **H3E-4**

Erich Schlecht[1]; Jose Siles[1]; Jeanne Treuttel[1]; Robert Lin[1]; Jeng-Hwa Yee[2]; Dong Wu[3]; Bertrand Thomas[4]; Imran Mehdi[1]
[1]Jet Propulsion Laboratory, United States; [2]Applied Physics Laboratory, United States; [3]Goddard Space Flight Center, United States; [4]Radiometer Physics Gmbh, Germany

Friday, August 28, 2015

08:45 - 09:00	**Morning Announcements and Closing Ceremony**	**Lecture Theatre 1**

09:00 - 10:30	**FP - Friday Plenary**	**Lecture Theatre 1**
	Chairperson: Peter H. Siegel	
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11:45	**Rapid Control Of Machined Glass Fiber Reinforced Plastics By Single Shot Terahertz Time Domain Spectroscopy....882** Uli Schmidhammer; Xavier Neiers; Pierre Jeunesse Université Paris Sud, CNRS, France	**F1A-3**
12:00	**Impact Damage Characterization In Hybrid Fiber Composites Using Terahertz Imaging In The Time And Frequency Domains....884** Junliang Dong; David Citrin; Nico Declercq; Alexandre Locquet Georgia Institute of Technology, France	**F1A-4**

12:15	**Transfer Matrix Method For Precise Determination Of Thicknesses In A 150-ply Polyethylene Composite Material....886** Norbert Palka[1]; Soufiene Krimi[2]; Frank Ospald[2]; Rene Beigang[2]; Danuta Miedzinska[1] [1]Military University of Technology, Poland; [2]Fraunhofer Institute for Physical Measurement Techniques IPM, Germany	**F1A-5**

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11:30	**Colossal Terahertz Nonlinearity Of Angstrom-sized Infinite Gaps....891** Young-Mi Bahk[1]; Bong Joo Kang[2]; Yong Seung Kim[3]; Joon-Yeon Kim[1]; Won Tae Kim[2]; Tae Yun Kim[1]; Jiyeah Rhie[1]; Sanghoon Han[1]; Cheol-Hwan Park[1]; Fabian Rotermund[2]; Dai-Sik Kim[1] [1]Seoul National University, Korea, Republic of; [2]Ajou University, Korea, Republic of; [3]Sejong University, Korea, Republic of	**F1B-2**
11:45	**Extreme Terahertz Brightness By Focusing To A Lambda-cubic Volume....893** Mostafa Shalaby[1]; Christoph. P. Hauri[2] [1]Paul Scherrer Institute, Switzerland; [2]Paul Scherrer Institute and Ecole Polytechnique Federale de Lausanne, Switzerland	**F1B-3**
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11:45	**A Dual-Pass High Current Density Resonant Tunnelling Diode Terahertz Emitter....908** Kristof Jacobs[1]; Benjamin Stevens[1]; Osamu Wada[1]; Toshikazu Mukai[2]; Dai Ohnishi[2]; Richard Hogg[1] [1]The University of Sheffield, United Kingdom; [2]Rohm Co. Ltd., Japan	**F1D-3**
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[1]Institute of Applied Physics RAS, Russian Federation; [2]Research Center for Development of Far-Infrared Region, University of Fukui (FIR-UF), Japan

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