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The 27th International Symposium on Space Terahertz Technology

April 12-15, 2016, Nanjing, China

Program

Tuesday, April 12, 2016

14:00-20:30 Registration

18:30-20:30 Reception

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Wednesday, April 13, 2016

8:00-8:30 Registration

8:30-8:40 Welcome & Opening Remarks

8:40-10:10 W1 Session: THz Projects & Instruments (I)

(Chair: Heinz-Wilhelm Hübers)

8:40 ALMA - Scientific Results and Future Developments (Invited)
Tetsuo Hasegawa (*National Astronomical Observatory of Japan*)

9:10 The Far-Infrared Spectroscopic Explorer (FIRSPEX): Probing the Life-Cycle of the Interstellar Medium in the Universe
GhassanYassin (*University of Oxford*)

9:30 CMB Polarization Experiment “GroundBIRD”
ChikoOtani (*RIKEN Center for Advanced Photonics*)

9:50 First Flight of the PILOT Balloon Borne Experiment
FrancoisPajot(*Institut de Recherche en Astrophysique et Planetologie*)

10:10-10:40 Coffee Break

10:40-12:20 W2 Session: THz Mixers& Detectors (I)

(Chair: Jonathan Kawamura)

10:40 (3) HEB Waveguide Mixers for the upGREAT4.7 THz Heterodyne Receiver Array
PatrickPüetz (*University of Cologne*)

11:00 (3) Study of IF bandwidth of NbN Hot Electron Bolometers on GaNBuffer Layer using a Direct Measurement Method
Sascha Krause (*Chalmers University of Technology*)

11:20 THz Sensors Based on Superconducting MgB2
BorisKarasik (*Jet Propulsion Laboratory*)

11:40 MgB2 HEB Mixers at Operation Temperatures above Liquid Helium Temperature
EvgeniiNovoselov (*Chalmers University of Technology*)

12:00 Experimental Studies of IF impedance of MgB2 HEB Mixers at Various Bias Conditions and Operation Temperatures
Sergey Cherednichenko (*Chalmers University of Technology*)

12:20-14:00 Lunch Break

14:00-16:00 W3 Session: THz Receivers

(Chair: Valery Koshelets)

14:00 1.9 THz 4-Pixel Heterodyne Array Receiver
Jonathan Kawamura (*Jet Propulsion Laboratory*)

14:20 TheupGREAT THz Arrays for SOFIA: Successful Commissioning at 1.9 THz
NettyHoningh(*University of Cologne*)

14:40 (4) 7 Pixels Prototype for a 230 GHz Multi-beam Receiver
Doris Maier (*Institut de Radioastronomie Millimetrique*)

15:00 Ultra Low Noise 600/1200 GHz and 874 GHz GaAsSchottky Receivers for SWI and ISMAR
Peter Sobis (*Omnisys Instruments AB*)

15:20 (3) 1200GHz and 600GHz SchottkyReceivers for JUICE-SWI
Alain Maestrini (*Observatoire de Paris*)

15:40 874-GHz HeterodyneCubesat Receiver for Cloud Ice Measurements-Flight Model Data
EricBryerton (*Virginia Diodes, Inc.*)

16:00-16:30 Coffee Break

16:30-18:30 W4 Session: THz Mixers &Detectors (II)

(Chair: Boris Karasik)

16:30 Ultra-low Noise TES bolometer Arrays for SAFARI Instrument on SPICA
PouryaKhosropanah (*SRON Netherlands Institute for Space Research*)

16:50 Readout of a 160 Pixel FDM System for SAFARI TES Arrays
RichardHijmering (*SRON Netherlands Institute for Space Research*)

17:10 TheSpaceKIDsProject: Development of Kinetic Inductance Detector Arrays for Space Applications
Pete Barry (*Cardiff University*)

17:30 Terahertz Superconducting Imaging Array (TeSIA)
ShengCaiShi (*Purple Mountain Observatory*)

17:50 Frequency Division Multiplexing withSuperconducting Tunnel Junctions as Rectifiers and Frequency Mixers
Gerhard de Lange (*SRON Netherlands Institute for Space Research*)

18:10 (4) A 230 GHz Finline SIS Receiver with Wide IF Bandwidth
John Garrett (*University of Oxford*)

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Thursday, April 14, 2016

8:30-10:20 T1 Session: THz Projects & Instruments (II)

(Chair: Tetsuo Hasegawa)

8:30 Beyond Herschel: Key Scientific Requirements for Future Far Infrared Facilities (Invited)
Matt Griffin (*Cardiff University*)

9:00 Millimetron Space Observatory as a Scientific Instrument with Excellent Astronomical Capabilities
Andrey Smirnov (*The Lebedev Physical Institute of the Russian Academy of Sciences*)

9:20 ICEMuSIC – A New Instrument Concept for Mm-wave Observations of Ice Clouds, and Temperature and Humidity Sounding from Space
PeterHargrave (*Cardiff University*)

9:40 Terahertz Intensity Interferometry for Very High Angular Resolution Observations
Hiroshi Matsuo (*National Astronomical Observatory of Japan*))

10:00 NOEMA: a Powerful mm Array in the Northern Hemisphere
FrédéricGueth (*Institut de Radioastronomie Millimetrique*)

10:20-10:50 Coffee Break

10:50-12:30 T2 Session: Quantum Cascade Lasers

(Chair: JianRongGao)

10:50 Integrating THz Quantum Cascade Lasers to Flexible Dielectric-metallic Waveguides: Moving beyond Free Space Optics
HarveyBeere *(University of Cambridge)*

11:10 Frequency Instabilities of Terahertz Quantum-Cascade Lasers Induced by Optical Feedback
Heinz-WilhelmHübers (*German Aerospace Center, Institute of Optical Sensor Systems*)

11:30 Double Metal Quantum Cascade Laser with 2D Patch Array Antenna on a BCB Substrate with Gaussian Beam Shape for Local Oscillator Applications at 1.9THz
MatthiasJusten (*University of Cologne*)

11:50 (4) Frequency Locking and Monitoring Based on Bi-directional Terahertz Radiation of a 3rd-order Distributed Feedback QCL
JianRongGao (*SRON Netherlands Institute for Space Research*)

12:10 Spectral Modulation of Terahertz Quantum Cascade Lasers with Radio Frequency Injection Locking
Hua Li (*Shanghai Institute of Microsystem and Information Technology*)

12:30-14:00 Lunch Break&SOC Meeting

14:00-16:40 T3 Session: THz Sources &Optics

(Chair: Scott Paine)

14:00 (5) Design Considerations for Amplifier/Multiplier Chain (AMC) for Low Noise Local Oscillator
Edward Tong (*Harvard-Smithsonian CfA*)

14:20 (4) A 600GHz Tripler with >5mW and 6% Efficiency
Hugh Gibson (*Gibson Microwave Design EURL*)

14:40 (3) Broadband Direct Machined Corrugated Horn for LiteBIRD
Shigeyuki Sekiguchi (*University of Tokyo*)

15:00 (2) The Global Phase Grating
FabienDefrance (*Observatoire de Paris*)

15:20 Modal Analysis of Far-Infrared Multimode Horns and Waveguides for Ultra-Low-Noise Detectors for Astronomy
JiaJun Chen (*University of Cambridge*)

15:40 (4) Research on High Precision Antenna for DATE5
Zheng Lou (*Purple Mountain Observatory*)

16:00 Reconfigurable Beam Measurement System and Use for ALMA Band 11 (1.25-1.57 THz)
Alvaro Gonzalez (*National Astronomical Observatory of Japan*

16:20 Air Liquide Cryogenic Space Coolers for Science Applications – Past, Present and Future
Thierry Wiertz (*Air Liquide Advanced Technologies*)

16:40-18:40 T4 Session: Group Photo &Poster

19:00-21:00 Banquet

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Friday, April 15, 2016

8:30-10:20 F1 Session: THz Projects & Instruments (II)

(Chair: Matt Griffin)

8:30 Antarctic Observatory at Chinese Kunlun Station (Invited)
Ji Yang (*Purple Mountain Observatory*)

9:00 4.7-THz Quantum-Cascade Laser for the upGREAT Array Heterodyne Spectrometer on SOFIA
Heinz-WilhelmHübers (*German Aerospace Center, Institute of Optical Sensor Systems*)

9:20 Fast Terahertz Imaging using a Quantum Cascade Amplifier up to 20,000 pps
Yuan Ren (*University of Cambridge*)

9:40 (4) The Sardinia Radio Telescope Front-Ends
AlessandroNavarrini (*INAF-Radio Astronomy Observatory*)

10:00 (3) Multi-Gbit/s Data Transmission in Sub-Terahertz Range
Zhe Chen (*University of Electronic Science and Technology of China*)

10:20-10:50 Coffee Break

10:50-12:30 F2 Session: THz Mixers & Detectors (III)

(Chair: Sergey Cherednichenko)

10:50 Study of Image Rejection Ratio of 2SB SIS receiver
AndreyKhudchenko (*SRON Netherlands Institute for Space Research*)

11:10 A Zero-Bias Ultrasensitive THz Hot-Electron Direct Detector with Large Dynamic Range
BorisKarasik (*Jet Propulsion Laboratory*)

11:30 Room-temperature Direct and Heterodyne Detectors Based on Field-effect Transistors
Hua Qin (*Suzhou Institute of Nano-tech and Nano-bionics*)

11:50 Photon Counting Detector as a Mixer with Picowatt Local Oscillator Power Requirement
MichaelShcherbatenko (*Moscow State Pedagogical University*)

12:10 Development of a 2 THz Solid-state Radiometer for Atmospheric Sounding
JeanneTreuttel (*Jet Propulsion Laboratory*)

12:30-12:40 Closing

12:40-14:00 Lunch

14:00-17:00 Tour to Purple Mountain Observatory & SMLab

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T4: Poster Session

P1 (4) Broken Photon-step Phenomenon in SIS Mixers
AndreyErmakov *(Chalmers University of Technology)*

P2 (3) Development of 1.5 THz Cartridge-type Multi-pixel Receiver Based on HEB Mixers
YenRu Huang *(Institute of Astronomy and Astrophysics, Academia Sinica)*

P3 Photon Noise Limited Performance over an Octave of Bandwidth of Kinetic Inductance Detectors for Sub-millimeter Astronomy
JuanBueno (*SRON Netherlands Institute for Space Research*)

P4 Gap Frequency and Photon Absorption in a Hot Electron Bolometer
AndreyTrifonov (*Harvard-Smithsonian CfA*)

P5 Frequency Agile Heterodyne Detector for SubmillimeterSpectroscopy of Planets and Comets
Jonathan Kawamura (*Jet Propulsion Laboratory*)

P6 Characterization of a Free-standing Membrane Supported Superconducting Ti Transition Edge Sensor
Wen Zhang (*Purple Mountain Observatory*)

P7 A HEB Waveguide Mixer Operating with a Waveguide QCL at 1.9 THz
DenisBüchel (*University of Cologne*)

P8 Single Junction Design for 790-950GHz SIS Receiver
KirillRudakov (*The Kotel'nikov Institute of Radio Engineering and Electronics*))

P9 A 1080-1280 GHz Sub-Harmonic BiasableSchottkyFront-end Design for Planetary Science and Remote Sensing
Diego Moro-Melgar (*Observatoire de Paris*)

P10 Development of an RF Waveguide Frequency Multiplexer for a Multiband Heterodyne System
Takafumi Kojima (*National Astronomical Observatory of Japan*)

P11 Concept Design of a Dual-Polarization Sideband-Separating Multi-Pixel SIS Receiver
WenLei Shan (*National Astronomical Observatory of Japan*)

P12 Development of Terahertz SIS Mixers Using Nb/AlN/Nb Tunnel Junctions Integrated with All NbTiN Tuning Circuits
YoshinoriUzawa (*National Institute of Information and Communications Technology*)

P13 (2) Gas Cell Measurement using an HEBM with a Phase-locked THz-QCL as a Local Oscillator at 3 THz Band
YoshihisaIrimajiri (*National Institute of Information and Communications Technology*)

P14 (3) Critical Temperature Dependence of the Noise Temperature and IF Bandwidth of Superconducting Hot Electron Bolometer Mixers
Wei Miao (*Purple Mountain Observatory*)

P15 Study of the Properties of TiNSuperconducting Films for Microwave Kinetic Inductance Detectors
Jing Li (*Purple Mountain Observatory*)

P16 Shot Noise in NbN Distributed Superconducting Tunneling Junctions
Dong Liu (*Purple Mountain Observatory*)

P17 (3) A 4.7 THz HEB QCL Receiver for STO2
DarrenHayton (*SRON Netherlands Institute for Space Research*)

P18 (2) Room Temperature Terahertz SubHarmonic Mixer Based on GaN Unipolar Nanochannels
FeiYang (*Southeast University*)

P19 Development of Wideband 100-GHz SIS Mixers for a New Multi-beam Receiver
YutoKozuki (*Osaka Prefecture University*)

P20 (4) Fabrication of NbN-based Hot Electron Bolometer Mixers by Standard UV Lithography
Christine Chaumont (*Observatoire de Paris*)

P21 A new Two-way Power Divider/Combiner Based on Magic T in W-Band
Hong Tang (*University of Electronic Science and Technology of China*)

P22 (2) Electron Gun Design for a 170 GHz Megawatt-level Corrugated Coaxial Gyrotron
Kun Dong (*University of Electronic Science and Technology of China*)

P23 (4) Design of Q-band Broadband RectangularWaveguide TE_{10}Mode to CircularWaveguide TE_{01} Mode Converter
ShuaiZong (*University of Electronic Science and Technology of China*)

P24 (3) A Novel Wideband Antipodal Fin-line Waveguide-to-Microstrip Transition Structure for Ka-band Applications
Bo Fang (*University of Electronic Science and Technology of China*)

P25 Design of a Novel Nonlinear Curve Coupling Waveguide Coupler for Sheet Beam Travelling Wave Tube
LiYa Yang (*University of Electronic Science and Technology of China*)

P26 (4) Design of a Ka-band HE11 Mode Corrugated Horn for the Faraday Rotator
Fang Li (*University of Electronic Science and Technology of China*)

P27 High Current Density Impregnated Scandate Cathode for Terahertz Vacuum Devices
YeFen Shang (*University of Electronic Science and Technology of China*)

P28 (2) Research on Gyrotron Traveling Wave Amplifier with LossyDielectric-Load Waveguide
Na Liu (*University of Electronic Science and Technology of China*)

P29 (4) Measurements of Dielectric Properties near100GHz using a Reflection-Type Hemispherical Open Resonator
Hao Li (*University of Electronic Science and Technology of China*)

P30 (3) A Novel Design of Waveguide-Coax Millimeter-wave Equalizer
LiuSha Yang (*University of Electronic Science and Technology of China*)

P31 A TE13 Mode Input Converter for 0.1THz High Order Mode Gyrotron Travelling Wave Amplifiers
Yan Wang (*University of Electronic Science and Technology of China*)

P32 (4) Optical Testing of the CAmbridge Emission Line Surveyor(CAMELS)
LingZhenZeng (*Harvard-Smithsonian CfA*)

P33 Design and Simulation of Interaction Structure for 110GHz Second-Harmonic Gyro-TWT
Nan Huang (*University of Electronic Science and Technology of China*)

P34 (3) A 15Gps High Speed OOK Receiver Based on a 0.34THz Zero-bias SchottkyDiode Detector
YaoLingTian (*China Academy of Engineering Physics*)

P35 (3) Improvement on 1.2 Hz Total Power Instability of KVN 129 GHz SIS Mixer Receiver
Jung-Won Lee (*Korea Astronomy and Space Science Institute*)

P36 (2) Investigation of Tunnel Superconducting Junction Mixing Regimes

	AntonArtanov (*The Kotel'nikov Institute of Radio Engineering and Electronics*)
P37 (4)	Development of a Millimeter Wave Grating Spectrometer for TIME Pilot ChaoTe Li (*Academia Sinica Institute of Astronomy and Astrophysics*)
P38	Terahertz Imaging Progress at Capital Normal University GuoZhong Zhao (*Capital Normal University*)
P39 (2)	Development of a 71-116GHz RF Module for the EMIR Receiver Upgrade Anne-Laure Fontana (*Institut de Radioastronomie Millimetrique*)
P40 (6)	Superconducting Local Oscillators: Development and Optimization PavelDmitriev(*The Kotel'nikov Institute of Radio Engineering and Electronics*)
P41	Improvement of the Planar Schottky Diode Capacity Model for the Implementation in the Non-linear Harmonic Balance ADS Simulator for Multipliers Design Diego Moro-Melgar (*Observatoire de Paris*)
P42 (3)	Design of a Terahertz Wire-wrap Backward-Wave Oscillator ChangPengXu (*University of Electronic Science and Technology of China*)
P43 (3)	Design and Analysis of a Y-band Extended Interaction Oscillator with a Pseudospark-Sourced Electron Beam Zhang Zhang (*University of Electronic Science and Technology of China*)
P44 (3)	340 GHz Frequency Multiplier with Unbalance Circuit Based on One Schottky Diodes Chip Jun Jiang (*Institute of Electronic Engineering*)
P45 (4)	A Multiple-Bridges Planar Superconducting Switch at Millimetre Frequencies

Boon Kok Tan (*University of Oxford*)

P46 Broadband Antireflective Subwavelength Structures for Large Diameter Silicon Lenses
Tom Nitta (*University of Tsukuba*)

P47 Beam Pattern Measurements of a Picket-Potter Feed Hornat 1.9 THz
Jenna Kloosterman (*Jet Propulsion Laboratory*)

P48 (2) Transmission and Reflection Properties of Dielectric Materials for THz Instrumentation
AnastasiiaPienkina (*Observatoire de Paris*)

P49 Corrugated Horns for ALMA band 11 (1.25-1.57 THz)
Alvaro Gonzalez (*National Astronomical Observatory of Japan*)

P50 (3) Fast On-the-Fly Near-field Antenna Measurement at 500GHz
Jie Hu (*Purple Mountain Observatory*)

P51 A Three-disc Window Based on Triangular Lattice of Dielectric Rods for High Power Gyro Amplifiers
YeLei Yao (*University of Electronic Science and Technology of China*)

P52 (3) A WR-4 Optically-Tunable Waveguide Attenuator with 50 dB Tuning Range and Low Insertion Loss
Zhenguo Jiang (*University of Notre Dame*)

P53 (2) Development of Sub-micron High Precision Carbon Fiber Reflector
Liang Xu (*Xi'an Institute of Optics and Precision Mechanics of CAS*)

P54 (3) Development of Octave-band Planar Ortho-Mode Transducer with MKID for LiteBIRD Satellite
ShiboShu (*University of Tokyo*)

P55 (2) Metamaterials-based Terahertz Filter
ZhenYu Zhao (*Shanghai Normal University*)

P56 Investigation of Temperature Dependence of Terahertz Spectra of Amino Acids
Ling Jiang (*Nanjing Forestry University*)

P57 (2) Measurement of 460 GHz Atmospheric Opacity at Delingha
Sheng Li (*Purple Mountain Observatory*)