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

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 Hübbers)

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
Ghassan Yassin (University of Oxford)

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

9:50 First Flight of the PILOT Balloon Borne Experiment
Francois Pajot (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 upGREAT 4.7 THz Heterodyne Receiver Array
Patrick Püetz (University of Cologne)

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

11:20 THz Sensors Based on Superconducting MgB2
Boris Karasik (Jet Propulsion Laboratory)

11:40 MgB2 HEB Mixers at Operation Temperatures above Liquid Helium Temperature
Evgenii Novoselov (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
Netty Honingh (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 GaAs Schottky Receivers for SWI and ISMAR
Peter Sobis (Omnisys Instruments AB)

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

15:40 874-GHz Heterodyne Cubesat Receiver for Cloud Ice Measurements-Flight Model Data
Eric Bryerton (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
Pourya Khosropanah (SRON Netherlands Institute for Space Research)

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

17:10 The Space KIDs Project: Development of Kinetic Inductance Detector Arrays for Space Applications
Pete Barry (Cardiff University)

17:30 Terahertz Superconducting Imaging Array (TeSIA)
Sheng Cai Shi (Purple Mountain Observatory)

17:50 Frequency Division Multiplexing with Superconducting 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)

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
Peter Hargrave (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
Frédéric Gueth (Institut de Radioastronomie Millimétrique)

10:20-10:50 Coffee Break

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

(Chair: JianRong Gao)
10:50 Integrating THz Quantum Cascade Lasers to Flexible Dielectric-metallic Waveguides: Moving beyond Free Space Optics
Harvey Beere (University of Cambridge)

11:10 Frequency Instabilities of Terahertz Quantum-Cascade Lasers Induced by Optical Feedback
Heinz-Wilhelm Hübers (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
Matthias Justen (University of Cologne)

11:50 Frequency Locking and Monitoring Based on Bi-directional Terahertz Radiation of a 3rd-order Distributed Feedback QCL
Jian Rong Gao (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 Design Considerations for Amplifier/Multiplier Chain (AMC) for Low Noise Local Oscillator
Edward Tong (Harvard-Smithsonian CfA)

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

14:40 Broadband Direct Machined Corrugated Horn for LiteBIRD
Shigeyuki Sekiguchi (University of Tokyo)
15:00 (2) The Global Phase Grating
Fabien Defrance (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

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-Wilhelm Hübers (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
Alessandro Navarrini (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
Andrey Khudchenko (SRON Netherlands Institute for Space Research)

11:10 A Zero-Bias Ultrasensitive THz Hot-Electron Direct Detector with Large Dynamic Range
Boris Karasik (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
Michael Shcherbatenko (Moscow State Pedagogical University)

12:10 Development of a 2 THz Solid-state Radiometer for Atmospheric Sounding
Jeanne Treuttel (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
Andrey Ermakov (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
Juan Bueno (SRON Netherlands Institute for Space Research)

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

P5  Frequency Agile Heterodyne Detector for Submillimeter Spectroscopy 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
Denis Büchel (University of Cologne)

P8  Single Junction Design for 790-950GHz SIS Receiver
Kirill Rudakov (The Kotel’nikov Institute of Radio Engineering and Electronics)
P9 A 1080-1280 GHz Sub-Harmonic Biasable Schottky Front-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
Yoshinori Uzawa (National Institute of Information and Communications Technology)

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

P14 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 A 4.7 THz HEB QCL Receiver for STO2
Darren Hayton (SRON Netherlands Institute for Space Research)
P18 (2)
Room Temperature Terahertz SubHarmonic Mixer Based on GaN Unipolar Nanochannels
Fei Yang (Southeast University)

P19
Development of Wideband 100-GHz SIS Mixers for a New Multi-beam Receiver
Yuto Kozuki (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 Rectangular Waveguide TE10 Mode to Circular Waveguide TE01 Mode Converter
Shuai Zong (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
Li Ya 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 Research on Gyrotron Traveling Wave Amplifier with LossyDielectric-Load Waveguide  
Na Liu (University of Electronic Science and Technology of China)

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

P30 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 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 A 15Gps High Speed OOK Receiver Based on a 0.34THz Zero-bias SchottkyDiode Detector  
YaoLingTian (China Academy of Engineering Physics)

P35 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 Investigation of Tunnel Superconducting Junction Mixing Regimes
Anton Artanov (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
Guo Zhong 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
Pavel Dmitriev (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
Chang Peng Xu (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 Horn at 1.9 THz
Jenna Kloosterman (Jet Propulsion Laboratory)

P48 Transmission and Reflection Properties of Dielectric Materials for THz Instrumentation
Anastasiia Pienkina (Observatoire de Paris)

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

P50 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 A WR-4 Optically-Tunable Waveguide Attenuator with 50 dB Tuning Range and Low Insertion Loss
Zhenguo Jiang (University of Notre Dame)

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

P54 Development of Octave-band Planar Ortho-Mode Transducer with MKID for LiteBIRD Satellite
Shibo Shu (University of Tokyo)

P55 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 Measurement of 460 GHz Atmospheric Opacity at Delingha
Sheng Li (Purple Mountain Observatory)