

## Program in detail

### **Sunday, April 27, 2014**

13:00 – 19:30 Registration Desk open, the Main Hall

14:00 – 16:30 TERADEC

17:00 – 19:30 Welcome party, the Main Hall

### **Monday, April 28, 2014**

8:30 – 9:30 Registration

9:30 – 10:05 Symposium opening: Gregory Goltsman, Teunis M. Klapwijk

#### **Chair: Boris Karasik**

10:05 – 10:30 Invited Talk: “SAFARI new and improved - extending the capabilities of SPICA’s Imaging Spectrometer” - Dr. Gerhard de Lange, SRON

10:30 – 11:30 Session 1: Systems & receivers I

<b>Paper</b>	<b>Abstract Title</b>	<b>Presenter</b>
1-1	Submillimeter-Wave Radiometer and Spectrometers using Cryogenically Cooled HEMT Amplifier Front-Ends	Goutam Chattopadhyay
1-2	Progress on the upGREAT heterodyne array receivers for the SOFIA telescope	Christophe Risacher
1-3	Development of a Terahertz Superconducting Imaging Array (TeSIA)	Sheng-Cai Shi
1-4	Development of a Total-Power Radiometer comprising a 340 GHz High-Resolution Sideband-Separating Schottky Receiver	Simon Rea

11:30 – 11:45 Coffee & Tea Break

#### **Chair: Doris Maier**

11:45 – 12:30 Session 2: Sources I

<b>Paper</b>	<b>Abstract Title</b>	<b>Presenter</b>
2-1	Phase-locking of a 4.7 THz quantum cascade laser based on a harmonic super-lattice mixer	J.-R. Gao, Darren Hayton, D. Pavelyev
2-2	Progress towards a Room-Temperature 4.7 THz Multiplied Local Oscillator Source to Enable Neutral Oxygen Observation	Jose Siles
2-3	A 4.7 quantum-cascade lasers as local oscillator for the GREAT heterodyne spectrometer on SOFIA	Heiko Richter

12:30 – 14:00 Lunch Break

Meeting of ISSST Steering Committee (continue on Tuesday if necessary)

**Chair: Alexej Semenov**

14:00 – 14:25 Invited Talk: “SpaceKIDs - The development of Kinetic Inductance Detectors for Space Based Applications” - Dr. Simon Doyle, Cardiff University

14:25 - 15:40 Session 3: Direct detectors

<b>Paper</b>	<b>Abstract Title</b>	<b>Presenter</b>
3-1	A stacked wafer design for hexagonal arrays of TES bolometers	Gerhard de Lange
3-2	A Resonance Cold-Electron Bolometer with a Kinetic Inductance Nanofilter	Leonid Kuzmin
3-3	A planar frequency selective bolometric array at 350 GHz	Alexander Sobolev
3-4	Power Load Dependencies of Cold Electron Bolometer Optical Response at 350 GHz	Mikhail Tarasov
3-5	Response of the antenna coupled TES with High-Frequency Readout to 0.65 THz radiation	Artem Kuzmin

15:40 – 16:00 Coffee & Tea Break

**Chair: Sergey Ryabchun**

16:00 – 16:25 Invited Talk: “Superconducting Metamaterials” - Dr. Alexey Ustinov, Karlsruhe Institute of Technology

16:25 – 17:10 Session 4: Optics

<b>Paper</b>	<b>Abstract Title</b>	<b>Presenter</b>
4-1	Cryogenic resonator spectrometer for satellite antennas reflectivity investigation at millimeter and terahertz bands	Evgeny Serov
4-2	Capillary quasioptical highpass filter	Artem Chekushkin
4-3	Development of the Wide FoV Cold Optics for Millimeter and Submillimeter Wave Observation	Shigeyuki Sekiguchi

\*17:25 – Bus boarding

\*18:00 – 20:00 Tour to *Radio Physics Lab and Technological Center of Moscow State Pedagogical University* (optional)

**Tuesday, April 29, 2014**

9:00-9:30 Registration

**Chair: Raymond Blundell**

9:30 – 9:55 Invited Talk: “Millimetron: The next FIR/mm Space Observatory” - Dr. Thijs de Graauw, Astro Space Centre of P.N. Lebedev Physical Institute, RAS

9:55 – 11:10 Session 5: THz coherent detectors: HEB I

<b>Paper</b>	<b>Abstract Title</b>	<b>Presenter</b>
5-1	Optimization of the intermediate frequency bandwidth in the THz HEB mixers	Alexey Semenov
5-2	Low Noise Terahertz Mixers made of MgB <sub>2</sub> Films	Sergey Cherednichenko
5-3	Performance of a 4.7 THz waveguide HEB mixer for SOFIA's upGREAT	Denis Büchel
5-4	MgB <sub>2</sub> Hot Electron Bolometers Operating Above 20 K	Daniel Cunnane, Boris Karasik
5-5	Performance of twin-slot antenna coupled NbN hot electron bolometer mixers at frequencies ranging from 1.4 to 4.7 THz	Nathan Vercrussen

11:10 – 11:30 Coffee & Tea Break

**Chair: Victor Belitsky**

11:30 – 12:30 Session 6: Systems & receivers II

<b>Paper</b>	<b>Abstract Title</b>	<b>Presenter</b>
6-1	Testing of 166 to 664 GHz receivers prototypes based on discrete planar Schottky diodes for ICI onboard MetOp-SG	Mostafa Benzazaa
6-2	Scientific Requirements for Next Generation Space Terahertz Astronomy Missions	Igor Zinchenko
6-3	THz photometers for solar flare observations from space	Pierre Kaufmann
6-4	Atmospheric Profiling Synthetic Observation System at THz Wave Band	Qijun Yao

12:30 – 14:00 Lunch Break

**Chair: Teunis Klapwijk**

14:00 – 14:25 Invited Talk: “Large format, background limited arrays of Kinetic Inductance Detectors for sub-mm astronomy” - Dr. Jochem Baselmans , SRON

14:25 - 15:40 Session 7: Novel devices & measurements

Paper	Abstract Title	Presenter
7-1	Normal Metal HEB Detector with Johnson Noise Thermometry Readout	Boris Karasik
7-2	Photon Statistics for Space Terahertz Astronomy	Hiroshi Matsuo
7-3	Frequency multiplication in a distributed array of SIS junctions	Bhushan Billade
7-4	Terahertz detectors based on the room temperature Nb5N6 microbolometers	Jian Chen
7-5	Photothermoelectric Response in Asymmetric Carbon Nanotube Devices Exposed to Sub-THz Radiation	Georgy Fedorov

15:40 Coffee & Tea Break

**Chair: Gregory Goltsman**

15:40 – 17:40 Poster session

Poster	First name	Last name	Title
<b>1-c - THz coherent detectors: Schottky diodes</b>			
<b>1-b - THz coherent detectors: SIS</b>			
1	Edward	Tong	Wideband Receiver Upgrade for the Submillimeter Array
2	Patrick	Pütz	First mixer prototype results for Band L (455-495 GHz) of CHAI
3	Patrice	Serres	Characterization of the IF output impedance of SIS mixers
4	Parisa	Yadranjee Aghdam	SIS Tunnel Junction's Specific Capacitance Direct Measurement
5	Andrey	Khudchenko	Image Rejection Ratio of 2SB SIS Receivers
6	Hawal	Rashid	Improved Quadrature RF Hybrid for 2SB and Balanced THz Receivers
7	Konstantin	Kalashnikov	Development of Phase Lock Loop based on Harmonic Phase Detector

Poster	First name	Last name	Title
<b>1-a - THz coherent detectors: HEB</b>			
8	Gregory	Gay	Design, fabrication and measurement of a membrane based quasi-optical THz HEB mixer
9	Tatsuya	Soma	Wide RF band mixer-block design for waveguide-type HEB mixer
10	Yury	Lobanov	Development of a 30 THz Heterodyne Receiver Based on a Hot-Electron-Bolometer Mixer
<b>2 -Direct Detectors</b>			
11	Jing	Li	Development of an 8×8 Microwave Kinetic Inductance Detector Array at 850 $\mu\text{m}$
12	Masato	Naruse	Superconducting on-chip spectrometers at sub-millimeter wavelength
13	Mikhail	Patrashin	Zero bias GaAsSb/InAlAs/InGaAs tunnel diodes for MMW-THz detection
14	Wen	Zhang	Characterization of Ti superconducting transition edge sensors
15	Timothe	Faivre	Experimental study of a Josephson junction based thermometer and its possible application in bolometry
16	Alexander	Shurakov	A Microwave Pumped HEB Direct Detector Using a Homodyne Readout Scheme
<b>3 - Systems &amp; Receivers</b>			
17	Alexander	Shurakov	1200 GHz receiver front-end for Sub-millimetre Wave Instrument for the JUICE mission
18	Olivier	Auriacombe	Laboratory Based Terahertz Spectroscopy for Ice Desorption Studies of the Interstellar Medium
19	Victor	Belitsky	Dual Band MM-Wave Receiver for Onsala 20m Antenna
20	Fabien	Defrance	Heterodyne measurements at 2.6THz of the HEB mixer for the balloon experiment CIDRE
21	Weidong	Hu	The 220 GHz stepped-frequency Imaging Radar
22	-	-	-
23	Grigoriy	Bubnov	Search for New Sites for THz Observations in Eurasia

Poster	First name	Last name	Title
<b>4 - NbN film technology</b>			
24	Sascha	Krause	Deposition of high-quality ultra-thin NbN films at ambient temperatures
25	Alexey	Pavolotsky	Study of NbN ultra-thin films for THz hot-electron bolometers
<b>5 – Sources</b>			
26	Andrey	Kaveev	Terahertz Emission from Silicon Nanostructures Heavily Doped with Boron
27	Ion	Oprea	Monolithically integrated 440 GHz doubler using Film-Diode (FD) technology
28	Zhe	Chen	A Schottky Diode Frequency Multiplier Chain at 380 GHz for a gyro-TWA Application
29	Yoshihisa	Irimajiri	Phase-locking of a 3.1THz quantum cascade laser to terahertz reference generated by a frequency comb
<b>6 – Optics</b>			
30	Arvid	Hammar	Spline Feed Horns for the STEAMR Instrument
31	Bertrand	Thomas	1.9-2.5 THz and 4.7 THz electroformed smooth-wall spline feedhorns for the HEB mixers of the upGREAT instrument onboard SOFIA aircraft
32	Hiroaki	Imada	Condition of Optical Systems Independent of Frequency for Wide Filed-of-View Radio Telescopes
33	Takafumi	Kojima	Design and Loss Measurement of Substrate Integrated Waveguides at Terahertz Frequencies
<b>7 - Back-ends: readout &amp; signal processing</b>			
34	Anton	Artanov	The operation of SIS mixer as up- and down-convertor at low frequencies for frequency multiplexing.
35	Kenichi	Karatsu	Development of Superconducting Low Pass Filter for Ultra Low Noise Measurement System of Microwave Kinetic Inductance Detector

Poster	First name	Last name	Title
<b>8 - Novel devices &amp; measurements</b>			
36	Boon Kok	Tan	A Planar Superconducting Phase Switch for Polarization Modulation
37	Edward	Tong	A Digital Terahertz Power Meter Based on an NbN Thin Film

\*17:40 – Bus boarding OR walk to IRE (~15 minutes)

\*18:00 – 19:00 Tour to IRE (*Kotel'nikov Institute of Radio Engineering and Electronics, RAS*) (optional)

19:00 – Bus boarding at IRE or at the Symposium site

19:30 – 22:00 Conference dinner

**Wednesday, April 30, 2014**

9:00 – 9:30 Registration

**Chair: Patrick Pütz**

9:30 – 9:55 Invited Talk: “The Greenland Telescope” - Dr. Raymond Blundell , Smithsonian Astrophysical Observatory

9:55 – 10:10 Special Talk “Radioastron” – Dr. Yury Kovalev, Astro Space Centre of P.N. Lebedev Physical Institute, RAS

10:10 – 11:10 Session 8: THz coherent detectors: HEB II & SIS mixers

<b>Paper</b>	<b>Abstract Title</b>	<b>Presenter</b>
8-1	NbN Hot-Electron Bolometer Mixer Operation at 3.8 THz	Ivan Tretyakov
8-2	Superconducting Integrated Receiver with HEB-Mixer	Nickolay Kinev
8-3	High-quality NbN-MgO-NbN SIS junctions and integrated circuits for THz applications	Valery Koshelets
8-4	Fully integrated sideband-separating Mixers for the NOEMA receivers	Doris Maier

11:10 – 11:30 Coffee &amp; Tea Break

**Chair: Bertrand Thomas**11:30 – 12:00 Session 9: Back-ends: readout & signal processing

<b>Paper</b>	<b>Abstract Title</b>	<b>Presenter</b>
9-1	SIS Frequency Multiplexers and RF-to-DC converters for Frequency Division Multiplexed TES Read-out	Gerhard de Lange
9-2	Experimental Study of Superconducting Microstrip Travelling-wave Parametric Amplifiers	Wenlei Shan

12:00 – 12:30 Session 10: Sources II

<b>Paper</b>	<b>Abstract Title</b>	<b>Presenter</b>
10-1	High Power Solid-State THz Source Development	Jeffrey Hesler
10-2	4-Pixel Frequency Multiplied Source for High-Resolution heterodyne Array receivers at 1.9 THz	Imran Mehdi

12:30 – 14:00 Lunch Break



**Chair: Imran Mehdi**

14:00 – 14:25 Invited Talk: “The SubMM Wave Instrument on JUICE” - Dr. Paul Hartogh,  
Max Planck Institute for Solar System Research

14:25 – 15:25 Session 11: THz coherent detectors: Schottky mixers

<b>Paper</b>	<b>Abstract Title</b>	<b>Presenter</b>
11-1	Schottky-structures for Space THz Technologies	Oleg Cojocari
11-2	THz Schottky Diode MMICs for Astronomy and the Physics of the Atmosphere	Lina Gatilova
11-3	Sub-millimeter-wave balanced mixers and multipliers at the 5th harmonic	Hugh Gibson
11-4	Schottky diode based components for TeraSCREEN	Hui Wang

15:25 – 15:40 Session 12 (optional): Announcements & conference closing: Gregory Gol'tsman

15:40 – 16:00 Coffee & Tea Break

\* 16:10 – Bus boarding

\* 17:00 – 19:00 Tour to *IKI (Space Research Institute, RAS)* (optional)

\* 19:00 – 21:00 Entertainment (optional)