



IRMMW-THz
Tucson 2014

39th Int. Conf. on Infrared, Millimeter, and THz Waves

September 14-19, 2014
The University of Arizona, Tucson, AZ

IRMMW-THz 2014 Oral and Poster Session Schedule

Note: The author name listed is the CORRESPONDING author, not the presenting author. The presenting author that was selected on the paper input process will be highlighted in the program book. An "&" in the session title indicates two topics in this session. All sessions are 90 minutes long. Room designations may change. Bold titles indicate 30 minute Keynote talks. Regular titles are 15 minute orals (including questions). Poster session papers are listed after the oral sessions on each day (M-Th). Topic Area numbers refer to the Session Topic Key on the website. All Plenary sessions take place in Crowder Hall in the Music School on 2nd St. and Olive Rd. from 8:30-10:30 each morning. The Vendor Exhibition and all other sessions, including posters, are at the Student Union Memorial Center at the James E. Rodgers Way and Mountain Ave. cul-de-sac.

Session Number Key: M2/A-6 = Monday-Session#2/Room A-Session Topic 6 (see Topic Key in Program Book)

Monday, September 15, 2014

Opening Remarks 8:30-9:00

Crowder Hall Auditorium - Music School - 2nd St. and Olive Rd. - Not Student Union Building

M1/P-37. Plenary Session P1: 9:00 - 9:45

Session Chair: Chris Walker

Peter Staecker: "Some THz, and Other Thoughts About Science and Technology from the IEEE"

M1/P-4. Plenary Session P2: 9:45 - 10:30

Session Chair: Chris Walker

John Mather: "The James Webb Space Telescope And Beyond"

Oral Session M2: 11:00-12:30

University of Arizona Student Union Memorial Center 3rd Floor

Union Kiva Room (2nd Floor)

M2/A - 1. Imagers and Imaging Techniques I

Session Chair: Dan Mittleman

The "KIDcam" Passive THz Imager - Recent Developments (Invited Talk)

Microbolometer Terahertz Focal Plane Array And Camera With Improved Sensitivity At 0.5-0.6 THz
Terahertz Imaging Using A Monolithic Metamaterial Based Detector
Antenna-coupled Micro.-based THz Dete.or Room Temp. Beam Prof. Imaging Of Photocond. THz Pulse Emitters
Resolution Limits Of Terahertz Holography Using A QCL

K. Wood
N. Oda
I. Escorcia Carranza
I. Kasalynas
P. Zolliker

Catalina Room

M2/B - 2. Radar and Active Probing - 3. Communications I

Session Chair: Tadao Nagatsuma

Sub-millimeter Wave Diode Transceivers (Invited Talk)

Performance Of A 340 GHz Radar Transceiver Array For Standoff Security Imaging
Low-Loss THz Waveguide Bragg Grating Using A Two-Wire Waveguide And A Paper Grating
120GHz Real-Time Wireless Data Link Based On Schottky Technology
Terahertz Performance In Atmospheric Turbulence

T. Bryllert
K. Cooper
A. Markov
Z. Chen
J. Ma

Tucson Room

M2/C - 6. Industrial Applications and Instruments

Session Chair: Kiyomi Sakai

Terahertz Car Paint Thickness Sensor: Out Of The Lab And Into The Factory (Invited Talk)

Portable Solid State CW THz Radar System For Industrial Applications
Improved Image Quality Of Terahertz Transmission Microscope: Example Of Graphene Film Observation
Compact Quasi-Optical Schottky Detector With Fast Voltage Response
Non-metallic Foreign Objects Detection System For Industrial Inspection using Pulsed Terahertz System

R. May
A. Svigelj
T. Ishi
A. Penirschke
T. Ikari

Rincon Room

M2/D - 7. Metrology and Non Destructive Evaluation I

Session Chair: Kodo Kawase

Micromachined Probes For Characterization Of Terahertz Devices (Invited Talk)

Lower Bound Of Sample Thickness In Terahertz Time-Domain Spectroscopy
Traceable Terahertz Power Metrology At NIST
Material Characterization Of Historical Parchment Using Terahertz Time-domain Spectroscopy
Design Considerations And Performance Metrics Of A High--Sensitivity Multi--Band Terahertz Linear Camera

R. Weikle
W. Withayachumnankul
M. White
T. Bardon
J. Law

Santa Rita Room

M2/E - 9. Ultra-Fast Chemistry and Physics

Session Chair: Hou-Tong Chen

Mapping The Distrib. Of Photo-currents Responsible For Gen. Of THz. Pulses At Semic. Surf. ((Invited Talk)

Sub-Cycle Slicing Of High-Field Multi-THz Transients
Magneto-optically Induced Currents In GaAs: Experimental Access To Subpicosecond K-space Carrier Dynamics
Excitation Of Coherent Phonons In GaAs By Broadband THz Pulses
Bulk-like Transversal Electron Mobility In Heavily N-doped InP Nanowires Probed By Terahertz Spectroscopy

R. Mueckstein
B. Mayer
C. Schmidt
M. Yamaguchi
H. Nemeč

Oral Session M3: 14:00-15:30

Union Kiva Room (2nd Floor)

M3/A - 1. Imagers and Imaging Techniques II

Session Chair: Margaret Kim

Imaging With A Multichan. THz Time-domain Spectroscopy System At 1030 nm Excitation Wavel (Invited Paper)

Hollow Metallic Waveguides For Beam Shaping THz QCL
W-band Imager Without Mechanical Scanning Based On An Echelle Spectrometer
THz Imaging With Broadband Thermal Sources
A 0.1 Megapixel THz Camera With 17 Degree Field Of View for Large Area Single Shot Imaging

A. Brahm
R. Degl'Innocenti
D. Marks
C. Balocco
L. Marchese

Catalina Room

M3/B - 3. Communications II - 4. Astronomy and Planetary Science I

Session Chair: Chris Groppi

30-Gbit/s Wireless Transmission Over 10 Meters At 300 GHz (Invited Talk)

Anisotropic THz Plasmonic Filter Created Using A K-Space Design Technique
20-Gbaud QPSK Coherent Radio Transmission At 325 GHz With High-Gain Antennas
X-Spec: A Multi-Object, Trans-Millimeter-Wave Spectrometer For CCAT
10 Meter Sub-Orbital Large Balloon Reflector (LBR)

T. Nagatsuma
A. Paulsen
A. Kanno
S. Chapman
C. Walker

Tucson Room

M3/C - 10. Defense and Security Applications

Session Chair: Lee Mosbacher

Terahertz Circuits, Systems, And Imaging Instruments (Invited Talk)

Identification Of Substances By THz Spectroscopy And Multivariate Analysis
Terahertz Imaging Spectroscopy - Towards Robust Identification Of Concealed Dangerous Substances
A Fast Tracking 60 GHz Radar Using A Frequency Scanning Antenna
THz Spectroscopy Of Amines And Aminoacids Intercalated In Clays

G. Chattopadhyay
A. Pohl
M. Haakestad
A. Hommes
M. Janek

Rincon Room

M3/D 7. Metrology and Non Destructive Evaluation II - 8. Biology and Medical Applications I

Session Chair: Harmut Roskos

Terahertz Pulse Investigations Of Paleolithic Wall Etchings
Millimeter Wave And Terahertz Dielectric Waveguide Microfluidic Sensors
Effects Of THz Radiation On Human Fibroblasts In-vitro: Exposure Set-up And Biological End Points
Millimetre-wave Dielectric Spectroscopy For Cell Analysis
Exploration Of Wound Physiology Using THz Imaging
Terahertz Image Processing For The Skin Cancer Diagnostic

J. Jackson
P. Chahal
G. Gallerano
H. Rodilla
Z. Taylor
A. Shkurinov

Santa Rita Room

M3/E - 12. Material Science I

Session Chair: Rene Beigang

Intense THz. Mag. Fields Are Used To Control The Magne. State Of Ferromag. Cobalt Thin Film. (Invited Talk)

Progress On Mn-Co-Ni-O Infrared Thin Films And Detectors
Carrier Multiplication In Bulk Silicon Investigated By Terahertz Spectroscopy
Time-resolved THz Dynamics In Thin Films Of Bi₂Se₃
Pump Polarization Dependence Of Optical Rectification For 112A GaAs

C. Hauri
Z. Huang
G. Yamashita
D. Yarotski
C. Bleasdale

Oral Session M4: 16:00-17:30

Union Kiva Room (2nd Floor)

M4/A - 1. Imagers and Imaging Techniques III

Session Chair: Dan Mittleman

Design, Fab. And Charact. Of 585 GHz Integ. Focal-Plane Arrays Based On Het. Backward Diodes (Invited Talk)

Terahertz Edge Detection With Antenna-Coupled Field-Effect Transistors In 0.25 μ m AlGa_N/Ga_N Technology
3D Terahertz Versus X-ray Imaging For Mochica Ceramic Investigation
Dem. Of Large Field Of View Fast Scan Based On A Real-time Uncooled Antenna & Cavity Coupled Bolom. Array Camera
Measurement Of Spatial Response Of CMOS Antenna-Coupled FET Detector At 325GHz

S. Rahman
S. Boppel
P. Mounaix
F. Simoens
M. Perenzoni

Catalina Room

M4/B - 4. Astronomy and Planetary Science II - 5. Atmospheric and Earth Sciences

Session Chair: Chris Walker

Heterodyne Receivers For High Frequency THz Astrophysics (Invited Talk)

SAFARI: A Far-Infrared Imaging Spectrometer For SPICA
Engineering And Science Data From SuperCam: A 64-Pixel Heterodyne Receiver For CO J=3-2 At 345 GHz
Spatial/Spectral Interferometry Development For Far-Infrared Space Applications
Determination Of Water Vapor Continuum Absorption, Using Long-Path THz-TDS Without The Cross-Term

H. Huebers
W. Jellema
J. Kloosterman
L. Spencer
D. Grischkowsky

Tucson Room

M4/C - 13. Spectroscopy Instruments and Techniques I

Session Chair: Enrique Castro-Camus

Terahertz Wave Emission From Laser-Induced Micro-Plasma (Invited Talk)

Frequency-Resolved Detection Of Broadband THz Waves With Cherenkov-Phase-Matched Heterodyne EO Sampling
Design And Characterization Of A TES Bolometer For Fourier Transform Spectroscopy In The THz Range
Single-Shot Terahertz Magneto-Spectrometer
Simultaneous Mea. Of The 1st And 2nd Harm. Of A Phase Modulated Coherent Freq.-domain THz Spectrometer

F. Buccheri
M. Tani
M. Kehrt
B. Spencer
J. Demers

Rincon Room

M4/D - 8. Biology and Medical Applications II

Session Chair: Emma MacPherson

Measurements And Calculations Of Protein Intramolecular Vibrations In The THz Range (Invited Talk)

An Investigation Of THz Burn Wound Edema Imaging Using MRI
Excitation Of Low Loss HE₁₁ Modes On An Acupuncture-Like Needle
Monitoring The Water Status Of Plants Using THz Radiation
Morphological Study Of Sweat Ducts For The Investigation Of Terahertz Waves Interaction With Human Skin

K. Niessen
N. Bajwa
A. Tirkel
N. Born
S. Tripathi

Santa Rita Room

M4/E - 12. Material Science II

Session Chair: Roger Lewis

Investigation Of Silicon-Germanium Nanowires THz Emission (Invited Talk)

Terahertz Probing Of Local Electron States In PbTe(Ga)
Terahertz Response Of SrTiO₃ Based Heterostructures: Influence Of Strain, Temperature And Electric Field
Carrier Transport Of Conducting Polymer PEDOT:PSS Investigated By temperature Dependence Of THz And IR Spectra
THz Wave Generation From Cesium Vapor

S. Kim
D. Khokhlov
V. Skoromets
Y. Yamada
X. Sun

Poster Session M5: 17:30-19:00

Ballroom South

Session Chair: Jitao Zhang

Broadband "Focus-Free" Terahertz Imaging Using Axicons	S. Busch
Phase Retrieval And Image Reconstruction With Echoed Amplitude In Terahertz Band	C. Li
Enhancing Terahertz Image Quality By Finite Impulse Response Digital Filter	L. Hou
Telecentric F-theta Lens For High-Speed Terahertz Reflection Three-Dimensional Imaging	J. Yahng
Emissivity Meas. Of High-Tc Supercond. Materials Using THz. Passive Imag. System With Background-Limited Sensitivity	M. Aoki
A Millimeter Wave/Terahertz 3D Scanner For Wall Painting Investigation	E. Giovenale
Design And Characterization Of Cross Bow Tie Antenna Array For Focal Plane Array In Terahertz Imaging	A. Mir
140 GHz Active Imaging Systems Based On FMCW Radar	S. Kuznetsov
Eval. Of Radio-over-Fiber Char. At Airprtt For Optically-Connec.Rwy. Sfce. Foreign Obj. Debris Detect. Mm-wave Radar	S. Futatsumori
Radar Cross Section Of The Metal Sphere From Microwave To The Optical Frequency	R. Wang
Analysis Of Polarisation Diversity At Terahertz Frequencies	N. Lawrence
Analysis Of Millimetre-Wave Polarisation Diverse MIMO Capacity	N. Lawrence
Resonant-tunneling-diode Oscillator With High-freq. Modulation Structure For High-capacity Terahertz Communication	S. Suzuki
600 GHz HD-TV Transmission Combining UTC-PD And Heterodyne Receiver	G. Ducournau
Submillimeter Polarimetry With PolKa, A Reflection-type Modulator For The APEX Telescope	G. Siringo
Effect On Viscosity Of Cellulose Deriv. Against Pseudo-polym. Conv. Of Amorphous Theophylline Using a THz. Spectrosc.	T. Sakamoto
Terahertz Investigation Of X-Ray Anti-Imaging Coatings: Spectroscopic Characterization And Imaging	N. Burford
Pulsed THz Imaging For Non-Destructive Testing Of Adhesive Bonds	U. Schmidhammer
Numerical Simulation Of DC Equivalent Factor Of THz Calorimeter	M. Kinoshita
A Practical Implementation Of Millimeter And Submillimeter Wave Length On-Wafer S-Parameter Calibration	A. Fung
A Vector Network Analyzer-Based Near Field Scanner For MM-Wave And THz Receivers	K. Davis
Effect Of Terahertz-Wave Interference On Power Calibration Accuracy	Y. Takida
Repeatability Of Absolute Terahertz Power Measurements By A Sensitive Calorimeter	H. Iida
Development Of High Accuracy Power Meter In Terahertz Region	S. Nishina
Uncertainty Calculation Of A D Band Power Meter Calibration Factor	K. Shimaoka
Effect Of Time-Delay Errors On THz Spectroscopy Dynamic Range	D. Humphreys
Application Of THz Radiation To Polyethylene Composite Materials	N. Palka
Non-destructive Testing Of Glass Fibre Reinforced Plastics With A Full Polarimetric Imaging System	M. Nezdal
Terahertz-Elasticity Measurements On Elastomers	S. Katletz
Wideband Frequency-Domain Material Characterization Up To 500 GHz	A. Kazemipour
Terahertz Stimulate Specific Signaling Pathways In Human Cells	I. Echchgadda
Quantitative Analysis Of Amino Acids Based On THz Refractive Index Spectra	H. Zhang
Thermodynamics Of New Piroxicam Derivatives In Terahertz Light	E. Plinski
In Situ Phase Measurement of Two Color Field with Terahertz Radiation	C. Meng
Total Variance Regularization For Millimeter-wave Holographic Imaging	L. Qiao
System Analysis And Image Processing For Millimeter-wave Holographic Imaging	Z. Li
Traveling Wave Amplif. From Multi-Beam Slow Wave Structures For High Power Millimeter And THz Wave Generation	Y. Shin
Terahertz Optical Kerr Effect Spectroscopy Of Biological Molecules	T. Harwood
Liquid Crystal Materials With High Birefringence For THz Applications	U. Chodorow
Development Of Thick Orientation Patterned GaP For Frequency Conversion In The Mid IR And THz Region	S. Vangala
Temperature-dependent Refractive Indices Of A 1mol % MgO-doped Stoichiometric LiTaO3 Crystal AtHz Freq. Range	K. Lee
Electromag. Response Of Anisotropic Polystyrene Comp. Materials Cont. Oriented Multiwall Carbon Nanotubes	V. Zhuravlev
Investigation Of Dielectric And Conductivity Properties Of YSZ	B. Pejcinovic
NIR And MWIR Transparent Liquid Crystals	J. Herman
Research Of Dielectric Properties Of Wood At Frequencies 0.1-0.5 THz	T. Kochetkova
Low-Pressure Gas Spectroscopy Using THz. Freq. Synth. Traceable To Microwave Freq. Standard Via Dual Optical Comb	T. Yasui
Extraction Of Beat Signal Between Dual THz Combs Using Dual THz Spectrum Analyzers	R. Ichikawa
A Waveguide Filter Bank For Millimeter-Wave Spectroscopy	G. Che
Far-Infrared Absorption Measurements On Thin Polymer Films	U. Schade
THz Subwavelength Metamaterials Polarization Insensitive Modulators	H. Cui
Reflectance Spectroscopy Of Pigments In MIR To THz Spectral Range	S. Shilov
Tunable Inter-Landau-level Lasing In Resonant Tunneling Multiple Quantum Well Structures	Y. Mityagin
Intense And Short Millimeter Wave Pulse Generation By Using A Gyrotron As A Light Source	S. Mitsudo
3D Printing Of Aspherical Terahertz Lenses And Diffraction Gratings	A. Squires
High Efficiency, Modular, Optical Pulse Shaping Technique For Tunable, Narrowband THz Generation	E. Gagnon
Wide Range And High Res. CW THz Spectrom. Combined With GaP THz Signal Gen. And Mechanically Cooled Bolometer	T. Sasaki

Tuesday, September 16, 2014

Opening Remarks 8:30-9:00

Crowder Hall Auditorium - Music School

T1/P-37. Plenary Session P3: 9:00 - 9:45

Session Chair: Peter H. Siegel

Serge Haroche: "Juggling With Microwave Photons In A Box To Explore The Quantum World"

T1/P-20. Plenary Session P4: 9:45 - 10:30

Session Chair: Peter H. Siegel

Andrea Neto: "Advanced Antenna Architectures For Terahertz Sensing Instruments"

Oral Session T2: 11:00-12:30

University of Arizona Student Union Memorial Center 3rd Floor

Union Kiva Room (2nd Floor)

T2/A - 1. Imagers and Imaging Techniques IV

Session Chair: Kiyomi Sakai

Terahertz Digital Holographic Imaging Of Visibly Opaque Printed Dielectrics (Invited Talk)

Optical Steerable Terahertz Zone Plate

Towards 3-D THz Volume Inspection For Process Control

Terahertz Near-field Imaging For Fractal Metallic Structures

Fundamental Perf. Of Liquid Crystal Millimeter-wave Phase Shifter Using Negative Dielectric Anisotropic Material

W. Ng

X. Wang

F. Friederich

K. Tanaka

T. Nose

Catalina Room

T2/B - 17. Near Field Techniques and Instruments

Session Chair: Gunsik Park

Enhanced Terahertz-near-field Controls Nanotip Photoemission (Invited Talk)

Low-loss THz Pulse Transmission In Commercially Available Teflon Tubes Coated With Silver

Non-Contact Probes For Characterization Of THz Devices And Components

Planar Goubau Lines For On Chip Terahertz Microscopy

Probe Correction For Near-Field Scanning With A Dielectric Fiber

G. Herink

M. Navarro-Cia

M. Martin

T. Akalin

A. Kazempour

Tucson Room

T2/C - 13. Spectroscopy Instruments and Techniques II

Session Chair: Martin Koch

Single-Frequency THz Source Based On Difference Freq. Ge. In An Enhancement Cavity (Invited Talk)

Precise Terahertz-wave Phase Measurement Based On Photonics Technology

Detecting THz Signatures Of Liquids With Chirp Induced Stimulated Raman Scattering

Polarimetry At Novosibirsk Terahertz Free Electron Laser Facility

Improved Substance Identification By Suppression Of Multiple-Reflection-Induced Spectral Noise

M. Scheller

S. Hisatake

S. Funkner

Y. Choporova

F. Ellrich

Rincon Room

T2/D - 8. Biology and Medical Applications III

Session Chair: Margaret Kim

Millimeter-Wave Non-Invasive Monitoring Of Glucose In Anesthetized Rats (Invited Talk)

THz Imaging Of Alzheimer's Disease: Spectroscopic Differentiation Between Normal And Diseased Tissues

Diagnosis Of Burn Wounds Using Terahertz Time-Domain Spectroscopy

Concentration Of Terahertz Radiation For Microsample Spectroscopy

Terahertz Observation Of Salt Penetration In Collagen Fibers

P. Siegel

W. Yeo

M. Arbab

W. Zhang

M. Mizuno

Santa Rita Room

T2/E - 16. High Power and Nonlinear Phenomena I

Session Chair: Hou Tong Chen

Terahertz Kerr Effect In Gallium Phosphide Crystal (Invited Talk)

Dynamics Of The THz Optical Discharge

THz Light Source At SLAC FACET User Facility

Terahertz Field Induced Electromigration

THz Autocorrelation Measurements At The Metrology Light Source

E. Abraham

V. Kubarev

Z. Wu

A. Strikwerda

A. Pohl

Oral Session T3: 14:00-15:30

Union Kiva Room (2nd Floor)

T3/A - 1. Imagers and Imaging Techniques V

Session Chair: Tadao Nagatsuma

Millimeter Wave Surf. And Reflectivity Estimation Based On Sparse Time Of Flight Measurements (Invited Talk)

Analysis And Optimization Of THz Imaging Optics With Off-Axis Parabolic Mirrors

Characterizing A WR-1.5 Diagonal Horn Antenna Using Photo-Induced Coded-Aperture Imaging

Terahertz Generation By Optical Mixing Of Chirped Fiber Laser Pulses

Towards A 3D Material Characterization Using Dual-energy THz Tomography

R. Zhu
S. Sung
M. Shams
J. Adamonis
B. Recur

Catalina Room

T3/B - 18. Modelling and Analysis Techniques I

Session Chair: Goutam Chattopadhyay

Characterization And Modelling Of THz Schottky Diodes (Invited Talk)

Ocular Temperature Measurements During Infrared Or Millimeter Wave Exposure

Polarization State Of Terahertz Pulses Generated By Tilted-pulse-front-pump Scheme Using Femtosecond Laser

Modeling And Optimization Method For Thermal THz Sensing With MOS Transistors

Toward Precise Assignment Of THz Spectra By DFT

T. Kiuru
M. Kojima
Z. Zhai
D. Corcos
O. Kambara

Tucson Room

T3/C - 13. Spectroscopy Instruments and Techniques III

Session Chair: Xuechu Shen

Algorithms For Sample Identification Using Is-TPG Spectroscopy

Towards Broadband THz-TDS: LN Waveguide THz Emission Super Focused Onto A Reversed Photoconductive Antenna

Time-domain Picture Of The Terahertz Vector Waveform Measured By The Electro-optic Sampling Method Using The Crystal Sym

THz Time-domain Spectroscopy Beyond 4 THz Using A Sub-picosecond Yb-doped Fiber Laser System

Fast-Scanning Fabry-Perot Spectrum Analyzer With Continuously Tunable Resolution

High-precision Phase Determination In A Continuous-wave Terahertz Spectrometer By Heterodyning Of Three Lasers

I. Smirnova
G. Niehues
K. Oguchi
M. Nagai
J. Middendorf
A. Roggenbuck

Rincon Room

T3/D - 19. Optics and Quasi-Optics I

Session Chair: Ken Wood

Antennas And Quasi-optics For Space Terahertz Instrumentation (Invited Talk)

Beam Meas. Characterization And Optics Tolerance Analysis of A 900 GHz HEB Receiver For The ASTE Telescope

Hollow Core Terahertz Waveguide Fabricated Using A 3D Printer

Demonstration Of Sub-Megawatt Power Transmission To Microwave Rocket

Coherent Fourier Optics For The Analysis Of THz Antennas Under Focusing Systems

P. de Maagt
A. Gonzalez
N. Yudasari
M. Fukunari
B. Blazquez

Santa Rita Room

T3/E- 16. High Power and Nonlinear Phenomena II

Session Chair: Hao Xin

Measurement Of Birefringence Inside An Air Plasma By THz-ABCD (Invited Talk)

High Harmonic Generation In Monolayer Undoped Graphene At Terahertz Frequencies

Resonant Field Enhancement In Periodically Arranged Microslits For Non-linear Terahertz Spectroscopy

Terahertz Radiation Generation By Beating Two Obliquely Incident Lasers On A Plasma With Density Gradient

Modeling Of A Double-Grating Sub-THz Sheet-Beam Amplifier

J. Zhang
I. Al-Naib
P. Klarskov
J. Parashar
N. Ryksin

Oral Session T4: 16:00-17:30

Union Kiva Room (2nd Floor)

T4/A - 20. Antennas and Beam Forming Networks I

Session Chair: Andrea Neto

On The Development Of Silicon Micromachined Lens Antennas For THz Integrated Heterodyne Arrays (Invited Talk)

Design And Fabrication Considerations For A 250 GHz Liquid Crystal Phase Shifter

Terahertz Vector Bessel Beams Generated By Plasmonic Waveguide Scattering

Evanescence Holes For Power Monitoring Of A Pulsed Cloud Radar

Transmission Bleaching And Coupling Crossover In A Split Tapered Aperture

M. Alonso del Pino
C. Weickmann
Y. Monnai
K. Pike
S. Liu

Catalina Room

T4/B - 18. Modelling and Analysis Techniques II

Session Chair: Chao Zhang

Modeling And Simulation Of Vacuum THz Source (Invited Talk)

High Precision Material Characterization Method Using THz Spectroscopy
Improvement Of Terahertz Spectrum Accuracy By Selective Extraction Of Sample-Induced Echo Signals
Time-frequency Representation Of Terahertz Time-Domain Spectroscopy Signals Based On Stockwell Transform
Full-wave Simulation Of THz Photoconductive Antennas

B. Li
D. van Mechelen
J. Choi
Z. Bouguila
M. Pantoja

Tucson Room

T4/C - 13. Spectroscopy Instruments and Techniques IV - 14. Spectroscopy Liquids and Solids I

Session Chair: Andrea Markelz

Sideband-Ratio And Harm. Response Of Sub-Millimeter Wave Mixers Meas. With A Martin Puplett Interferometer
Spin And Lattice Vibrations Of CaMn7O12 In The THz Range
Solid Solution GaSe_{1-x}S_x Crystals For THz Applications
Proton Dynamics Of The Water Lattice In Nanochannel
Near-field Probing Of The THz Mie Magnetic Mode In A Single Sub-wavelength TiO₂ Sphere
Investigation Of High Frequency Carrier Dynamics Of Al-doped ZnO Nanowires By Terahertz Time Domain Spectroscopy

A. Murk
F. Kadlec
J. Molloy
H. Matsui
O. Mitrofanov
S. Kim

Rincon Room

T4/D - 19. Optics and Quasi-Optics II

Session Chair: Nuria Llombart-Juan

Laser-generated Broadband Antireflection Structures For Freeform Si Lenses At Terahertz Freq. (Invited Paper)

Corrugated Transmission Line Systems For 395 GHz/ 600 MHz And 460 GHz /700 MHz DNP-NMR Spectroscopy
A Focusing Metamaterial Based Wollaston Prism
Terahertz In Plane And Terahertz Out Of Plane (TIP-TOP) Switching Of A Liquid Crystal Spatial Light Modulator
Achromatic THz Wave Plate Composed Of Stacked Parallel Metal Plates with A Pillar Array

A. Brahm
J. Sirigiri
P. Moseley
B. Ung
M. Nagai

Santa Rita Room

T4/E - 16. High Power and Nonlinear Phenomena III

Session Chair: Alexander Litvak

UV Light Emis. From Resonant Gold Dip. Ant. In Air Illum. With Intense Sub-picosecond THz Trans (Invited Paper)

Terahertz Field-induced Second Harmonic Generation Through Pockels Effect In A Zinc Telluride Crystal
140GHz 8-way Power Combining Module
Ablation Of Organic Crystals Using Picosecond THz Free Electron Laser Pulses
EU Development Program For The 1 MW Gyrotron For ITER

K. Iwaszczuk
E. Abraham
X. Kang
M. Nagai
F. Cismondi

Poster Session T5: 17:30-19:00

Ballroom South

Session Chair: Alex Wu

THz And Mid IR Fourier Transform Spectroscopy On Polyethylene Irradiated With gamma - Co-60 Radiation
Phase-Sensitive Magnetoresistance Oscillations Induced By Comm. Bichromatic Irradiations In 2D Electron Systems
Absorption Spectra Of Benzoic Acid In The 5-15 THz Range
THz Spectroscopy Of Sodium, Lithium And Potassium Montmorillonites
THz Absorption Bands In Sr₁₄Cu₂₄O₄₁ By Synchrotron Radiation
Terahertz Spectroscopy Of Natural Stone Materials
Polarization Terahertz Spect. App. To Theophylline Anhydrous Single Crystal For Vibrational Mode Assignment
A Novel Accurate Method For Attenuated Total Reflection Spectroscopy
Study On Terahertz Parametric Oscillator Pumped By Multi-transverse- Mode Lasers
Transition From Insulating To Conducting States Induced By Intense Terahertz Pulses In Aggregate Of Metal Particles
Non-linear Spin Lattice Dynamic In KR(MoO₄)₂
Nonlinear Response Of Au Nanostructures Observed With Intense THz Pulses
The Beam-Wave Synchronization And Coupling For Different Modes In Three-Gap Coupled Cavity
Experimental Verif. 3D Subwavelength Resolution Beyond Abbe Barrier With Flat Diffractive Optic In Millimeter Wave
A Near-field Spoof Plasmon THz Probe Using Metallized 3-D Printed Plastic
An Innovative 3D Diffractive Lenses To Overc. The 3D Abbe Diffract. Limit In Millim. Wave: Simulation And Experiment
THz Near-field Microscopy Of Semiconductor And Metal Bowtie Antennas
A Novel Compact Microstrip-to-Waveguide Transition Structure for Integration with Multilayered Circuits
Optical Effects At Projection Measurements For Terahertz Tomography
Linear Analysis Of A 0.22THz Sine Waveguide Travelling Wave Tube
Interactions Of Electron Beams With Electromagnetic Waves In Cerenkov Devices With A Magnetized Plasma Column
Evaluation Of Effect Of Protective Case On Wave Propagation At 300GHz
Design Of Symmetric Window For THz Traveling-Wave Tube Amplifier
Electrostatic Field Simulation Of Variable Pitch Helical Cathode
Modeling And Analysis Of Millim./Sub-millimeter Wave Indoor Comm. For Multi-gigabit Wireless Transmission

J. Beckmann
X. Lei
J. Horvat
I. Wilke
E. Constable
D. Han
T. Sasaki
A. Soltani
J. Li
Y. Tadokoro
D. Kamenskyi
K. Yoshioka
J. Cui
I. Minin
K. Park
I. Minin
A. Bhattacharya
Y. Liu
A. Brahm
W. Xie
W. Haoying
T. Tosaka
X. Guo
S. Yue
Y. Choi

Sim. And Comparison Of High Freq. Charact. For A Step-Shaped Groove Staggered Double Grating Array Waveguide
 Processing Sequence To Analyse 3D THz Images
 A Wideband THz Time Domain Spect. Table-top System Based On Ultrafast Pulsed Laser: Model And Experiments
 Design Of Terahertz Filters Using An Improved Bisection Method
 Novel Analysis And Modeling Of Lossy Sub-millimeter Waveguides
 A Rigorous Study Of A Shielded Microstrip Line With MR-GEC Method
 Application Of Least Square Method In Optics Transformation
 Tunable And Broadband Negative Group Delays In A Birefringent Waveguide
 Design Of Electron Optics System For 0.33THz Extended Interaction Amplifier
 Design Of An Oversize Tapered-tube Beam Concentrator For Microwave Rocket
 THz Components And Plasmonic Structures Fabricated By Direct Laser Patterning Of Metals
 Low-cost High Fill-factor Polarizers With Low Insertion-loss Using An Anti-reflection Coating
 A Design Of A Slow-group-velocity And Low-loss Bragg Waveguide In Terahertz
 Dielectric Zoned Wedge Wide Scanned Diffractive 3D Lens Antenna-radome
 6.4 Mm Diameter Silicon Micromachined Lens For THz Dielectric Antenna
 Steering The Beam Directions In Terahertz Band By Frequency Sweeping
 Improve Open Slot Vivaldi Antenna Design For Terahertz
 Substrate Free G-Band Vivaldi Antenna Array Design, Fabrication And Testing
 Terahertz Emission And Reflection Associated With Surface Plasmon Polaritons In N-GaN Microstructures
 Design A New Metallic Grating Applied In Quantum Well Infrared Photo-detector
 Paraxial Equation For The Surface Wave On A Conducting Cylinder
 Effects Of Local Oscillator Phase Noise On Submillimeter-wave Spectrometer Performance
 Room Temperature THz Photoluminescence From IV-Group Semiconductors Under Interband Excitation
 Phase-locking Of A THz-QCL Using A Low Noise HEB Mixer, And A Frequency-comb As A Reference
 A 170-280 GHz InP HEMT Low Noise Amplifier
 Numerical Investigation Of Frequency-agile Terahertz Metamaterials Which Incorporate Semiconducting Material.

J. Luo
 B. Recur
 A. Tomasino
 B. Sensale-Rodriguez
 Y. Hussein
 N. Oueslati
 M. Junqueira
 T. Chang
 C. Zhao
 M. Fukunari
 I. Kasalynas
 J. Middendorf
 T. Chang
 I. Minin
 C. Lee
 C. Li
 X. Cao
 J. Arroyo
 V. Shalygin
 D. Liu
 I. Kotelnikov
 E. Schlect
 A. Andrianov
 Y. Irimajiri
 A. Zamora
 J. Yu

Wednesday, September 17, 2014

Opening Remarks 8:30-9:00

Crowder Hall Auditorium - Music School

W1/P-9. Plenary Session P5: 9:00 - 9:45 BUTTON PRIZE LECTURE

Session Chair: Terry Parker

Xi-Cheng Zhang: "Broadband Terahertz Wave Science and Technology"

W1/P-25. Plenary Session P6: 9:45 - 10:30

Rick Temkin: "THz Gyrotrons And Their Applications"

Oral Session W2: 11:00-12:30

University of Arizona Student Union Memorial Center 3rd Floor

Union Kiva Room (2nd Floor)

W2/A - 20. Antennas and Beam Forming Networks II

Session Chair: Neville Luhmann

Dual Band Sub-mm And IR Detector Based On Square Fresnel Zone Plate Lens (Invited Talk)

300 GHz Microfabricated Waveguide Slotted Arrays
 Dual Polarized Leaky Wave Antenna Coupled KIDs For THz Space Applications
 Terahertz Reflectarray For Bidirectional Beam Splitting
 THz Metal Mesh Filters On Electrically Thick Fused Silica Substrates

R. Gonzalo
 A. Boryssenko
 O. Yurduseven
 T. Niu
 W. Otter

Catalina Room

W2/B - 21. Plasmonics I

Session Chair: Daniel Grischkowsky

Hybrid Metal-dielectric THz Fibers: Design And Perspectives (Invited Talk)

Photo-generation Of Resonant Structures At THz Frequencies
 Extraordinary Transmission In A Complementary Metallic Disk And Hole Array For Terahertz Waves
 Broadband Characterization Of THz Frequency High Fill-Factor Substrate-Based Wire-Grid Polarizers With High Extinction Ratios
 New Laser Applications On The THz/FarIR Beamline At The Australian Synchrotron

M. Skorobogatiy
 G. Georgiou
 F. Fan
 J. Deibel
 R. Plathe

Tucson Room

W2/C - 14. Spectroscopy Liquids and Solids II

Session Chair: Gian Piero Gallerano

THz Spectroscopy Of Superconducting Ultrathin Films (Invited Talk)

Time Resolved Broadband Terahertz Relaxation Dynamics Of Electron In Water
Kinetics Of Polymorphic Transitions Of Cyclohexanol Studied By Terahertz Spectroscopy
THz ESR Study Of Perfect Kagome Lattice Antiferromagnet Cr-Jarosite
Salt-induced Change In Lipid Hydration

M. Dressel
T. Wang
H. Suzuki
H. Ohta
D. Choi

Rincon Room

W2/D - 19. Optics and Quasi-Optics III - 28. Superconducting Devices

Session Chair: Andrea Neto

Submm-wave Planar Focusing Devices Based On Holographic Reflectarrays (Invited Talk)

Fourier Gratings Used As THz Multiplexers: Design, Simulation, Test
Determination Of Waveguide Mode Content Using Irradiance Moments
Continuously Variable Substrate-based THz Beamsplitter
Spectral Response Measurements Of Ultra-sensitive TES Detectors In The 34-60 μm Wavelength Range

S. Kuznetsov
A. Kreisler
M. Shapiro
J. Middendorf
G. de Lange

Santa Rita Room

W2/E-22. Solid State Sources I.

Session Chair: Masanori Hangyo

Capability Of Broadband Solid-State Room-Temperature Coherent Sources In The THz Range (Invited Talk)

245 GHz Transmitter And Receiver In SiGe For Gas Spectroscopy
All-Silicon Integrated THz Harmonic Source And Receiver Components For Future Active Imaging Modalities
Broadly Tunable External Cavity Terahertz Source From 1.2 ~5.9 THz
THz-wave Generation Based On Crystals KTiOPO4 And KTiOAsO4

J. Siles
K. Schmalz
J. Grzyb
Y. Jiang
W. Wang

Oral Session W3: 14:00-15:30

Union Kiva Room (2nd Floor)

W3/A - 20. Antennas and Beam Forming Networks III

Session Chair: Ken Wood

Design Of High Gain THz Smooth Walled Feed Horns for CCAT Heterodyne Camera (Invited Talk)

Millimeter Wave Luneburg Lens Antenna Fabricated By Polymer Jetting Rapid Prototyping
Mixer And Beamforming Advances In Millimeter-Wave Imaging
Electrically Biased W-band Phase Shifter Based On Liquid Crystal
Aluminum LEKIDs For Millimeter-wave Radio Astronomy

G. Cortes-Medellin
K. Gbele
C. Domier
M. Jost
G. Jones

Catalina Room

W3/B - 21. Plasmonics II

Session Chair: Michele Ortolani

Mid-Infrared Plasmonic Platform Based On Heavily Doped Epi. Ge-on-Si (Invited Talk)

Intensification Of Terahertz Electric Field In A Semiconductor Nanodimer
Huge Field Enhancement In Microwave Range Achieved By $\lambda/2000$ -width Antennas
E-Shaped Patch Antenna Coupled Plasmonic FET For Broadband THz Detection In 130nm CMOS Technology
Indium Antimonide (InSb) Based Planar Terahertz Plasmonic Waveguide

L. Baldassarre
T. Wong
D. Kim
S. Nahar
S. Jebamalaiddass

Tucson Room

W3/C - 14. Spectroscopy Liquids and Solids III

Session Chair: Gian Piero Gallerano

Probing The Stability Of Fluorescent Proteins By Terahertz Spectroscopy (Invited Talk)

Identification Of Textile Fiber By IR and Raman Spectroscopy
Probing Solid-state Reaction Mechanisms With THz-TDS
Transm. Mod. Of THz Pulses Through Org.-inorg. Hybrid Struct. Under Polar. And Incident Angle Dep. Optical Excitation
Origin Of Non-Drude Conductivity In The THz Spectra Of Nanogranular Semiconductors

M. Xu
J. Molloy
E. Parrott
C. Kang
F. Kadlec

Rincon Room

W3/D - 25. High Power Sources: Gyrotrons I

Session Chair: Manfred Thumm

Development Of Advanced Gyrotrons (Invited Talk)

Operation And Upgrade Of The ECRH System At ASDEX Upgrade
Progress On High Power Long Pulse Gyrotron Development In JAEA
New Results And New Trends In Development Of Gyrotrons For Fusion
Stability Of Gyrotron Operation In Very High-Order Modes

J. Jelonnek
D. Wagner
K. Sakamoto
G. Denisov
G. Nusinovich

Santa Rita Room

W3/E - 22. Solid State Sources II - 23. Semiconductor Oscillators and Amplifiers - 24. Lasers and QCLs I

Session Chair: Jose Siles

Terahertz Parametric Source Generating Pulse Energy Of 6.5 uJ At 1.74 THz
1.46 THz RTD Oscillators With Strong Back Injection From Collector
Microfabricated, High Power Millimeter Wave Amplifiers At G-band
Injection Seeding Of Metal-metal Terahertz Quantum Cascade Lasers
Phase Locking A 4.7 THz Quantum Cascade Laser Using A Super-Lattice Diode As Harmonic Mixer
4.7-THz Local Oscillator For SOFIA Based On A Quantum-Cascade Laser

X. Zhang
M. Feiginov
C. Joye
K. Maussang
A. Khudchenko
H. Richter

Oral Session W4: 16:00-17:30

Union Kiva Room (2nd Floor)

W4/A - 27. Solid State Detectors and Mixers I

Session Chair: Michele Ortolani

Tunable Antenna Coupled Intersubband Terahertz Detector
Development Of THz Harmonic Mixer For QCL Phase Locking Application
A Compact And Reliable 200-300 GHz Receiver For The ITER ECE System
Cavity Modes In Hybrid Structure Of QWIP And Plasmonic Cavity
In Situ Spectroscopic Ellipsometry Of SIS Barrier Formation

N. Gautam
B. Bulcha
W. Bryerton
Q. Li
M. Cyberey

Catalina Room

W4/B - 21. Plasmonics III

Session Chair: Terry Parker

Application Of Plasma-Wave Detectors For Ultra-Short Pulse Terahertz Radiation (Invited Talk)
Terahertz Plasmon Cavity Modes In A Heterostructure Transistor
A Thorough Study Of THz. Surface Waves Trav. Along Metal-dielec. Surf. Of Diff. Curvature And Jump. Through Air Gaps
An Inkjet Printing Technique To Spatially Vary The Conductivity In Plasmonic Structures
Broadband THz Guidance In Helical Waveguides

A. Gutin
M. Ortolani
B. Knyazev
B. Gupta
D. Vogt

Tucson Room

W4/C - 14. Spectroscopy Liquids and Solids IV - 15. Spectroscopy Gas Phase

Session Chair: Xuechu Shen

Magnetic Field Induced Spin Reorient. Trans. In NdFeO₃ Invest. With THz Time-Domain Spect (Invited Talk)
Experimental Investigation On New Absorption Peaks Of Water Vapor At High Temperatures Using Terahertz Spectroscopy
Application Of Multivariate Analysis To Gas-Phase Spectroscopy At 245 GHz
Pulse Effects Of Terahertz Radiation In Molecular Gas Mediums
Step-like Multi-photon Absorption In Two-dimensional Semiconductors With Rashba Spin-orbit Coupling In Terahertz Regime

G. Ma
Y. Song
P. Neumaier
V. Kubarev
C. Zhang

Rincon

W4/D - 25. High Power Sources: Gyrotrons II

Session Chair: Rick Temkin

Effective Cavity Length Of High-Power Gyrotrons (Invited Talk)
Progress In The Development Of 117.5 GHz And 170 GHz Gyrotrons
New Results Of Extra-powerful 1.5MW/170 GHz Gyrotron Development
Development Of A Multiple-frequency Gyrotron, Gyrotron FU CW GV
2 MW, 170 GHz Coaxial-Cavity Short-Pulse Gyrotron- Single Stage Depressed Collector Operation

M. Thumm
K. Felch
V. Myasnikov
Y. Tatematsu
T. Rzesnicki

Santa Rita

W4/E - 24. Laser Sources and QCLs II.

Session Chair: Philip Mauskopf

Power Dep. Meas. Of Emiss. Bandw. Of A Ver.-External-Cav. Sfce-Emitting Laser Driven THz Source (Invited Talk)
Monolithic Tunable Terahertz Quantum Cascade Laser Source Based On Difference Frequency Generation
Narrow Bandwidth Injection Seeding Of A THz Quantum Cascade Laser
Towards GV/m And Multiple Tesla Fields In The THz Gap From Organic Crystals
Vertical-External-Cavity Surface-Emitting Laser For THz Generation

C. Möller
S. Jung
H. Nong
C. Hauri
S. Blin

Poster Session W5: 17:30-19:00

Ballroom South

Session Chair: Daisy Yu

Stabilization Of Simultaneously Oscillated 48- And 57-um CH3OD Lasers For Plasma Diagnostics	K. Nakayama
High Efficient THz Time Domain Spectroscopy Systems Using Laser Chaos And A Metal V Grooved Waveguide	F. Kuwashima
1.03 micron Yb Doped Mode-Locked Fiber Laser For Time-domain THz Spectroscopy	M. Kong
Studies On Far-field Divergence Of Tapered THz-QCLs	N. Yang
Terahertz Magnon-Photon Laser	B. Tankhilevich
Preliminary Result Of 300GHz Short Pulse High Order Mode Gyrotron	K. Sakamoto
Generalized Non-reflecting Radiation Boundary Conditions:numerical Implementation	S. Alberti
Gyrotron Output Power Stabilization By PID Feedback Control Of Heater Current And Anode Voltage	E. Khutoryan
Experimental Study On Terahertz Quasi-optical Mode Convertor	D. Liu
Thermal Behavior Of A Diamond Window Unit For Fusion Applications	A. Vaccaro
Multi-tip Field Emitters For Electron Devices Operating In Technical Vacuum	G. Sominski
Simulation Of A Diode Type Magnetron Injection Gun For A W-band CW Gyrotron	Z. Geng
Modification Of The X-Ray Diagnostics Of Electron Energy Distributions In Gyrotron	O. Louksha
Comparative Study On PIC Simulations Of The Gyrotron Cavity	A. Sawant
A W-band Gyrotron Traveling Wave Amplifier	C. Donaldson
Suppression Of Emission Nonuniformity Effect In Gyrotrons	O. Louksha
Development Of A Wide-Band Window In HE _{1,1} Guide For Gyrotrons	M. Read
Design Of A W-Band Four-Cavity Gyrotron Amplifier	Q. Xue
Study Of A 0.42 THz Fourth-Harmonic Large-Orbit Gyrotron	X. Li
Effects Of Electrons Misalign On The Output Power Of Backward Wave Oscillation Modes In Gyro-TWT	S. Peng
The ENEA CARM Source For Nuclear Fusion: Project Status And Perspectives	A. Doria
Millimeter-wave Components For A Helical Waveguide Gyro-TWA	C. Robertson
Experimental Study Of A 95GHz Quasi-optical Gyrotron	G. Ma
Cold Test Of A G-band Sheet Beam Backward Wave Oscillator	G. Liu
Gaussian-Profile Equilibrium Electron Beam In FEL	S. Zhang
Comparison Of Ion-Channel Guide And Magnetic Field Focusing In A FEL	S. Zhang
Spectral Dynamics Of Mm-Radiation From Two-Channel Planar Fem With Two Dimensional Distributed Feedback	P. Kalinin
Parameter Optimum Of Saturation Power In A FEL	S. Zhang
Simulation Of Smith-Purcell Terahertz Radiation From A Dielectric Loaded Grating	M. Cao
AlGa _N /Ga _N HEMT's Photoresponse To High Intensity THz Radiation	D. Coquillat
A Stitched 24x24 Field-effect Transistor Detector Array And Low-noise Readout Electronics For Real-time Imaging At 590 GHz	J. Zdanevicius
Terahertz Detector Using 70-nm T-Gate InAlAs/InGaAs HEMT Integrated With Bow-tie Antenna	S. Suzuki
Effect Of Buffer Quality On The Performance Of InAs/AlSb Heterostructure Backward Tunneling Diode	H. Zhao
Detection Of Terahertz And Mid-Infrared Radiations By InP-Based Asymmetric Dual-Grating-Gate HEMTs	D. Coquillat
Imaging Of A THz Beam With Si-MOSFET Detectors	J. Lusakowski
Terahertz Detectors Based On A Gated Two-dimensional Electron plasma In CdMnTe/CdMgTe Quantum Wells	J. Lusakowski
Increasing Sensitivity Of THz Radiation Detector Based On MOSFETs	P. Kopyt
Measurements Of A MOSFET Sub-THz Detector Integrated With Rectangular Patch Antenna	P. Kopyt
InP Double Heterojunction Bipolar Transistor As Sub-Terahertz Detector	D. Coquillat
Comparison Of A Sub-Harmonic And A Fourth-Harmonic Mixer Working At 440 GHz	I. Maestrojuan
A 340GHz Sub-Harmonic Mixer Based On Planar Schottky Diodes	L. Miao
Improved IF Gain Bandwidth For Terahertz Mixers Based On Superconducting Hot Electron Bolometers	J. Chen
Towards Quantum Limited Frequency Multiplication	H. Rashid
THz Phonon Spectroscopy Of Doped Bismuth Cuprates	Y. Ponomarev
Simulation Of Superconducting Nanowire Single Photon Detector With Phase Grating Structure	M. Gu
Using A Grain Boundary Josephson Junction As A Mixer To Evaluate Terahertz Emission From Intrinsic Josephson Junctions	D. An
Design And Characterization Of Evanescently-Coupled Photodiodes With A 1.3um Wavelength	E. Lee
Performance Metrics Of An Electronically-Tunable IR Laser As A Source For Continuous-Wave 1550 Nm Photomixers	D. Burdette
Terahertz Emission From InGa _N /Ga _N Multiple Quantum Well Light-Emitting Diode Heterostructures Under Two-Photon Excitation	S. Sarkisov
Spoof Surface Plasmonic Devices And Circuits In THz Frequency	T. Akalin

Thursday, September 18, 2014

Opening Remarks 8:30-9:00

Crowder Hall Auditorium - Music School

R1/P-15. Plenary Session P7: 9:00 - 9:45

Session Chair: Imran Mehdi

Richard Saykally: "Terahertz Spectroscopy Of Water Clusters"

R1/P-3. Plenary Session P8: 9:45 - 10:30

Tom Lee: "Bridging The Terahertz Gap: Progress And Challenges"

Oral Session R2: 11:00-12:30

University of Arizona Student Union Memorial Center 3rd Floor

Union Kiva Room (2nd Floor)

R2/A - 28. Superconducting Devices

Session Chair: Peiheng Wu

Waveguide Hot Electron Bolometer Mixer Development For UpGREAT (Invited Paper)

Continuous Wave Coherent Terahertz Radiation Above 1 THz From Josephson Junction Arrays
Large Format Antenna Coupled Microwave Kinetic Inductance Detector Arrays For Radioastronomy
Demonstration Of An NEP Of 3.8×10^{-19} W/Hz^{1/2} At 1.54 THz In Multiplexible Superconducting Microresonator Detectors
The UpGREAT Heterodyne Array Receivers For Far Infrared Astronomy

P. Pütz
H. Wang
A. Baryshev
P. de Visser
C. Risacher

Catalina Room

R2/B - 30. Photomixers and Photodetectors

Session Chair: Tahsin Akalin

Narrow Linewidth Gen. At 1 THz Using Cascaded Brillouin Fiber Lasers And Quasi-optic UTC-PD (Invited Paper)

Highly Efficient Terahertz Detection By Optical Mixing In A Fabry-Perot Cavity LT-GaAs Photoconductor
High Power Terahertz Generation From ErAs:InGaAs Plasmonic Photomixers
First Demonstration Of Photomixing At 1550 Nm In ErAs:GaAs
Precise THz Power Measurements With Novel Detectors

G. Ducournau
E. Peytavit
M. Jarrahi
J. Middendorf
R. Müller

Tucson Room

R2/C - 32. Metamaterials and Metadevices I

Session Chair: Hao Xin

Ultra-Broadband Terahertz Modulation By Active Hybrid Metamaterials (Invited Paper)

A Plasmonic Metasurface For Light Bending
Observation Of Electromagnetically Induced Absorption In A Three-Resonator System
Silicon-based, Ultra-Thin, Flexible Optically Tunable Metamaterial-Bandpass Filter In The THz-Regime
Broadband Plasmonic Terahertz Absorber Based On Silicon Cross Structures

H. Chen
J. Cheng
N. Xu
J. Neu
Y. Cheng

Rincon Room

R2/D - 25. High Power Sources: Gyrotrons III

Session Chair: Manfred Thumm

Multi-kWatt Ka-band Amplifiers Driven By Low Voltage Electron Beams (Invited Paper)

Design And Experimental Results From A 527 GHz Gyrotron for DNP-NMR Spectroscopy
Electron Cyclotron Heating And High Power Millimeter Wave Transmission System Status And Upgrades On DIII-D
A Compact Normal Magnet For High Power Millimeter-Wave Gyrotrons: The Electropermagmet
Sub-THz Gyrotrons With Special Functions Of Frequency Control for Applications To DNP-NMR Spectroscopy

B. Levush
S. Jawla
M. Cengher
L. Barnett
T. Idehara

Santa Rita Room

R2/E - 33. Graphene and New Materials I

Session Chair: Peter Uhd Jepsen

Graphene In Millimeter Wave Devices (Invited Paper)

Active Graphene-Silicon Hybrid Metamaterial Devices
Nonlinear Terahertz-Field-induced Carrier Dynamics In Photoexcited Graphene
A Deep-subwavelength Metamaterial Terahertz Phase Modulator
Terahertz Magnonics Using Ultrathin Films Of Samarium Ferrite Garnet

J. Stake
Q. Li
H. Hafez
S. Arezoomandan
M. Adachi

Oral Session R3: 14:00-15:30

Union Kiva Room (2nd Floor)

R3/A - 29. Low Noise Receivers and Amplifiers - 27. Solid-State Detectors and Mixers II

Session Chair: Imran Mehdi

THz Hot-Electron Bolometer Mixers (Invited Paper)

Cryogenic Low Noise Amplifier Development For 67-116 GHz
A 1.46 THz Schottky Receiver At Cryogenic Temperatures
The Kilopixel Array Pathfinder Project (KAPPA), A 16-pixel Integrated Heterodyne Focal Plane Array -- Characterization Of The Sin C.
Room-Temperature THz Antenna-Coupled Microbolometer With A Joule-Heating Resistor At The Center Of A Half-Wave Antenna

S. Cherednichenko
M. Kotiranta
J. Hesler
C. Wheeler
N. Hiromoto

Catalina Room

R3/B - 31. Photoconductive Antennas

Session Chair: Nuria Llombart-Juan

A Time-Domain Terahertz Spectrometer With 90 DB Dynamic Range (Invited Paper)

A Novel Photoconductive Antenna With A Band Gap Structure For Terahertz Applications
Multiphysics Modeling Of THz Photoconductive Antennas
1550-nm Time-Domain Study Of ErAs:GaAs Photoconductive Switches Function Of The Erbium Concentration
Nano-gap Electrode Large Area THz Emitter For The Enhanced Emission Efficiency And Heat Dissipation

A. Deninger
A. Zandieh
N. Burford
M. Martin
K. Moon

Tucson Room

R3/C - 32. Metamaterials and Metadevices II

Session Chair: Rick Ziolkowski

Enhancement Of Front To Back Ratio Of On Chip Antenna By Artificial Dielectrics At 300 GHz
Interactive Magnetic Coupling Between Spin Precession And Split-ring Resonator In The Terahertz Frequency
Trapped Eigenmodes In Terahertz Asymmetric Metamolecules
Broadband Terahertz Reflective Linear Polarization Converter
Intersubband Plasmon Based THz Meta-atoms
Polarization Controllable THz Stereometamaterial Absorber

W. Syed
T. Kurihara
N. Born
Y. Cheng
J. Darmo
S. Kim

Rincon Room

R3/D - 25. High Power Sources: Gyrotrons IV - 26. Free Electron Lasers

Session Chair: George Neil

346 GHz BWO For Fusion Plasma Diagnostics
TWANG-PIC, A Monomode Gyro-averaged PIC Code For Gyrotron Simulations
High Power Oscillation Experiment Of A Prototype Gyrotron For 300 GHz Band Collective Thomson Scattering Diagnostics In LHD
High Power Terahertz Radiation Source Based On Electron Beam Wakefields
Loss Tangent Measurement On Synthetic Single Crystalline Diamond (SCD) Samples
Design, Fabrication And Experiment Of A Two-Section Folded Waveguide For G-band Extended Interaction Oscillator

C. Domier
F. Braumueller
T. Saito
S. Antipov
F. Mazzocchi
W. Liu

Santa Rita Room

R3/E - 33. Graphene and New Materials II - 34. New Devices

Session Chair: Peter Uhd Jepsen

Ultrafast Carrier Dynamics in Graphene and Graphene Nanostructures (Invited Paper)

Design Of A Volume Mode W-Band TWT Amplifier
High Sensitive Terahertz Bolometers As Room Temperature Detectors
Rectennas For Thermal-Energy Conversion
THz Radiation From SWCNTs, Graphene And Metallic Thin Films: A Comparative Study

M. Bonn
J. Hummelt
S. Bevilacqua
C. Balocco
M. Muthee

Oral Session R4: 16:00-17:30

Union Kiva Room (2nd Floor)

R4/A - 38. Special Session on THz Communications I (20-minute invited talks)

Special Session Chair: Lothar Moeller

Recent Progress In THz.MMICs And Packages For Terahertz Communications At 300 GHz (Invited Paper)

120-GHz-band Wireless Communications Field Trials
Ultra-Broadband MMIC-Based Wireless Link At 240 GHz Enabled By 64 GS/s DAC
CMOS THz Communication Links For Wireless Applications: Where Do They Fit Into Mobile Access And Fixed Access?

H. Song
A. Hirata
F. Boes
A. Tang

Catalina Room

R4/B - 35. New Instruments - 36. New Applications I

Session Chair: Xi-Cheng Zhang

A 4.7 THz HEB/QCL Heterodyne Receiver For STO-2 (Invited Paper)

Ultrafast THz Sensing For Inline Monitoring and Real Time Observation Of Transient Phenomena
Fabrication Of A 35 GHz Folded Waveguide TWT Circuit Using Rapid Prototype Techniques
Electron Acceleration In A Single-cycle Terahertz Field
Position Effect Of Split Ring Resonators Along Terahertz Planar Goubau Line

D. Hayton
U. Schmidhammer
J. Anderson
W. Huang
T. Akalin

Tucson Room

R4/C - 32. Metamaterials and Metadevices III

Session Chair: Rick Ziolkowski

A Flexible Multi-layer Metamaterial For Filter And Biosensor At THz
THz Metamaterials Based On Metal-Insulator Transition Of VO₂ Patterns
Optimization Of Design And Microfabrication Of Metamaterial-based Absorbers For Terahertz Microbolometers

B. Jin
K. Kaltenecker
E. Oulachgar

Efficient Metamaterial Flat Lenses
Free-standing Terahertz Metamaterial Fabricated Via Injection Molding

N. Grady
J. Wang

Rincon Room

R4/D - 39. Special Session on Microwaves in Space I (20-minute invited talks)

Special Session Chair: Frank Maiwald

Microwave & Mm-Wave Radiom. For CubeSat Deploy. For Remote Sen. Of The Earth's Atmosph (Invited Paper)

A New Generation Of Small Satellite Radiometers For Earth Atmospheric Remote Sensing From Space
InP HEMT For Sub-Millimeter Wave Space Applications: Challenges And Status
Imaging Front-end For Thermal Detection Using An InP DHBT Process

S. Reising
W. Blackwell
B. Deal
V. Vassilev

Santa Rita Room

R4/E - 34. New Devices II

Session Chair: Philip Mauskopf

Wideband Paramps For The Millimeter And Submillimeter Bands (Invited Paper)

Spectral Characteristics Of Terahertz Radiation From Splitting Femtosecond Laser Filaments
Ultra-Broadband Telecom MEMS-VCSEL For Frequency-Tunable Terahertz Generation With Photomixers
A Terahertz Wave Parametric Amplifier With 55dB Gain
Monolithic Metal-Coated Plastic Components For MM-Wave Applications

P. Day
Y. Chen
M. Haidar
K. Murate
A. von Bieren

Poster Session R5: 17:30-19:00

Ballroom South

Session Chair: Min Liang

Mechanically Tunable Terahertz Notch Filter With Channel Number Control Based On Deep Cavity
Sub-terahertz Frequency Detection Using Sub-5 Fs Laser Pulses And A Photoconductive Antenna
THz Radiation Emission From InPAs And GaInAs Crystals
Efficiency And Spectrum Evaluation Of Terahertz Photoconductive Antenna Array Based On GaAs Substrates
Terahertz Emission Properties Of Photoconductive Antennas Based On LT-GaAs And SI-GaAs Substrates
On The Power Dependence Of 1.5 um Excitation Of Low-temperature-grown GaAs Photoconductive Antennas
Three-Dimensional Plasmonic Contact Electrodes For High-Efficiency Photoconductive Terahertz Sources
Second-order Bandpass Frequency Selective Surface For Terahertz Applications
Cavity Enhanced Modulation Of Sharp THz Bands
THz Waveguide With A Spit Ring Resonators Layer
Optimization Of Terahertz Metamaterial Modulator
Bending Induced Tuning Of The Resonant Response Of A Flexible THz Metamaterial Device
Photonic-Band-Gap (PBG) And Metam. RF-Struct. For High Power Millim. And THz Wave Electron Beam Devices
Electromagnetic Wave Propagation Through An Air-core Waveguide With Metamaterial Cladding
Alternative Frequency-selected Terahertz Bandstop Filter
Complex Optical Conduct. Of Graphene Mea. By Ultra-broadband THz Time-domain Spectr. Ellipsometry
Probing The Quantum Capac. Effect Of Nanometer Graph. Transistors With The Excit. Of THz. And IR Plasma Waves
Sub-THz Photocond. Of Kane Fermions In Hg1-xCd_xTe Crystals With Comp. Close To Semic.-to-semimetal Topol.Trans
Terahertz Detection At 240 GHz With A Semiconducting Carbon-Nanotube Field-Effect Transistor
Graphene-based THz Photodetector
Meas. The Optical Transmitt. Of Graphene With Si Subst. Within A Partic. Range Of The Spect. From THz To IR Regime
20um Gate Width CVD Graphene FETs for 0.6 THz Detection
GaN-based Implanted Self Switching Diodes For THz Imaging
Simulation Of A 95 GHz Two-Stage Three-Cavity Klystron Oscillator
Tunable Wavelength Terahertz Polarization Converter
Waveguide Coupling To High Index Whispering Gallery Mode Resonators In The THz Domain
Millimeter-wave Backward Wave Oscillators Driven By Pseudospark Electron Beams
340GHz Two-beam Folded Waveguide Traveling-wave Amplifier
Terahertz Wave Polarization Control by a Metal Wire-grid Polarizer based on VO₂-Al₂O₃
Integrated Calibration Switches For Compact Planetary Instruments
Design And Simulation Of The Terahertz Extended Interaction Oscillator
A Semi-Coaxial TGV Interposer For High Frequency 3D System Applications
Design Of Beam Transmission System For 0.3THz Folded Waveguide Traveling-wave Amplifier
Numerical Analysis And Experimental Design Of A 103 GHz Cherenkov Maser
Generation Of Broadband Optical Combs With High OSNR For CW-THz Wave Generation By Photonic Down-Conversion
A Microwave Applicator For Uniform Irradiation By Circularly Polarized Traveling Waves In An Anechoic Chamber
Terahertz Wave Generation And Terahertz Reference Transfer
Improved Acquisition Time Via Adaptive Sampling For THz-TDS
THz-Wakefield Generation By Modulated Electron Beams Resonating With Crystalline Plasma Channels
Hollow Core Terahertz Optical Fibers With Hyperuniform Disordered Dielectric Reflectors
U-shaped Quasi-parallel-plate For Low Voltage THz BWO
A Novel Sine Ridge Waveguide For 0.65THz Backward Wave Oscillator
Beam-Wave Interaction Study On A Novel Ka-band Ring-Shaped Microstrip Meander-Line Slow Wave Structure
A Square Helix Slow-Wave Structure For Millimeter-Wave TWTs

L. Chen
I. Katayama
I. Wilke
Y. Zeng
J. Zhang
Y. Kadoya
S. Yang
A. Ebrahimi
N. Born
M. Nazarov
D. Seliuta
J. Deibel
Y. Shin
X. Tang
J. Li
S. Ikeda
L. Wang
C. Consejo
M. Bauer
M. Wang
S. Al-Tikrity
A. Zak
G. Ducournau
N. Ryskin
A. Kaveev
H. Schwefel
A. Phelps
K. Li
J. Shin
C. Jung-Kubiak
W. Liu
R. Zeng
Z. Zhang
A. Phipps
I. Morohashi
K. Chu
M. Kumagai
Y. He
Y. Shin
M. Skorobogatiy
Y. Wei
L. Zhang
C. Ding
W. Wei

Optimization Of Multi-gap Extended Output Cavity For A G-band Sheet Beam Extended Interaction Klystron
High-power Ultrashort Pulse Amp. Using Double-clad Yb-doped Fiber For High-power And High-efficient THz Pulse Gen.
An Investigation Of Petrochemical Geological Samples By Terahertz Pulse Spectroscopy
Qualitative And Quantitative Analysis Of Explosives By Terahertz Time-domain Spectroscopy: Application To Imaging
Field And Temperature-dependent Thin Film Characterization With A Continuous-wave THz. Magneto-spectrometer
Measurement Of Dielectric Properties Of Human Skin In Vivo At THz Frequencies

S. Li
J. Hamazaki
D. Heaps
J. Bou Sleiman
D. Daughton
E. Grandy

Friday, September 19, 2014

Opening Remarks 8:30-9:00

Crowder Hall Auditorium - Music School

F1/P-4. Plenary Session P9: 9:00 - 9:45

Session Chair: Chris Groppi

Paul Goldsmith: "Far-Infrared/Submillimeter Astronomy: Recent Achievements And Future Possibilities"

F1/P-9. Plenary Session P10: 10:00 - 10:30

Masanori Hangyo: "Development And Versatile Applications Of Terahertz Time-Domain Spectroscopy"

Oral Session F2: 11:00-12:30

University of Arizona Student Union Memorial Center 3rd Floor

Union Kiva Room (2nd Floor)

F2/A - 38. Special Session on THz Communications II (20-minute invited talks)

Special Session Chair: Lothar Moeller

Prop. Meas. And Simulations For Mm-wave Mobile Access In A Busy Urban Environment (Invited Paper)
Comparison Of Terahertz Versus Infrared Free-Space Communications Under Identical Weather Conditions
Terahertz Indoor Communications: Fundamental Considerations And Recent Developments
Wireless Big Data; Are Our Wireless Edge Networks Ready?

W. Keusgen
J. Federici
M. Koch
D. Britz

Catalina Room

F2/B - 36. New Applications II

Session Chair: Shenqiang Liu

Penetrating Rock With Intense Millimeter-Waves (Invited Paper)
A THz Time Domain Spectroscopy Based Network Analyzer - Towards Real Time Characterization Of High Speed Electronic Components
Broadband Terahertz Wave Emission From Thin Metal Films Excited By Two-Color Laser Fields
Generation Of THz Bit Patterns Using A Fiber-Coupled Optical Pulse Shaper
Single Nanowire Photomixer For Reliable And High Frequency Continuous Wave Terahertz Generation

P. Woskov
J. Rämmer
X. Zhang
J. Rämmer
S. Al-Daffaie

Tucson Room

F2/C - 3. Communications & 4. Astronomy & 8. Bio. & 12. Materials

Session Chair: Hao Xin

200 GHz Coherent Wireless Link Using Photonics-based Emission
Dielectric Hole Lattice For Terahertz Diffractive Optics With High Transmission
A Broadband, On-Chip Sub/millimeter-Wave Spectrometer For X-Spec On CCAT
Effects Of Window Index And Thickness On Hydration Sensitivity And Probing Depth Of THz Imaging Systems
Modulating Conductivity Of Au/CNT Composites In THz Frequency Range: A THz Resistor
Graded Index Microstructured Polymer Fiber For Terahertz Applications

G. Ducournau
D. Headland
S. Hailey-Dunsheath
J. Garritano
D. Polley
T. Ma

Rincon Room

F2/D - 39. Special Session on Microwaves in Space II (20-minute invited talks)

Special Session Chair: Frank Maiwald

Juno At Jupiter: The Juno Microwave Radiometer (MWR) (Invited Paper)
Millimeter & Sub-millimeter Wave Radiometer Instruments For The Next Generation Of Polar Orbiting Meteorological Satellites -
Coherent Continuum Radiometers For Astronomy, Planetary And Earth Science
Radiometer Instruments For Space Applications

M. Janssen
B. Thomas
P. Kangaslahti
A. Emrich

Santa Rita Room

F2/E -34. New Devices III

Session Chair: Alain Maestrini

Silicon Micromachined Waveguide Components At 0.75 To 1.1 THz (Invited Paper)

A Variable Step THz Neutral Density Filter Based On PEDOT/PSS Doped With Dimethylformamide

Room-Temperature Terahertz Detection By Carbon Nanotube/Metal Heterostructures

Planar Periodic Surface Lattices For Use In Millimeter-Wave Sources

Detecting THz In The Telecom Range: all Resonant THz Up-conversion In A Whispering Gallery Mode Resonator

T. Reck

F. Yan

Y. Wang

A. MacLachlan

H. Schwefel

EXCURSIONS 13:00-18:00

Planned Departure from Student Union cul-de-sac