

Optical Terahertz Science and Technology (OTST) 2015  
Sunday March 8 to Friday May 13  
*Program Overview*

## **Sunday March 8<sup>th</sup>**

### **11:00AM – 5:00PM Registration and Sign-In**

### **2:00PM – 5:00PM Tutorial Session**

- 2:00 – 2:36 Charles Schmuttenmaer, Yale University  
“THz Studies of Carrier Dynamics in Nanomaterials”
- 2:36 – 3:12 Tadao Nagatsuma, Osaka University  
“Terahertz Wireless Communications”
- 3:12 – 3:48 Tobias Kampfrath, Fritz-Haber-Institute  
“Material control with intense terahertz pulses”
- 3:48 – 4:24 Andrea Markelz, University at Buffalo  
“THz spectroscopy of biomolecular dynamics”
- 4:24 – 5:00 Alessandro Tredicucci, University of Pisa  
“Graphene-based terahertz devices”

### **5:30PM – 7:00PM Reception**

**Note:** the program overview (pages 1- 4) shows the session titles and invited speakers. The complete speaker agenda is presented on pages 5 -8 and the complete poster agenda is presented on pages 9-14.

## **Monday March 9<sup>th</sup>**

### **Session 1:**

8:30 AM -10:00AM: **Session 1, Part 1: THz Photons**

Miriam Vitiello

“Photonic engineering of THz quantum cascade resonators”

10:00 – 10:30AM Coffee break

10:30 – 12:15PM: **Session 1, Part 2: Near Field and Far Field Spectroscopy**

Rainer Hillenbrand

“Infrared nanoscopy and nanospectroscopy – From plasmons to proteins”

**Lunch:** 12:20 – 1:30PM

**Poster Session 1:** 1:45 – 3:15PM

**Generation, Near-Field, Spectroscopy and Applications**

**Session 2:**

3:30 – 5:00PM talks: **Session 2, Part 1: Superconductors and Complex Materials**

Martin Dressel, Uwe S. Pracht, Marc Scheffler, Boris Gorshunov, Daniel Sherman, Aviad Frydman, Konstantin Ilin and Michael Siegel

“THz Spectroscopy of Superconducting Ultrathin Films”

5:00 – 5:30PM Coffee break

5:30 – 7:00PM talks: **Session 2, Part 2: Nonlinear and Dynamic Phenomena in Complex Materials**

Koichiro Tanaka

“Nonlinear optical phenomena induced by femtosecond pulse excitation in topological insulators”

## Tuesday March 10<sup>th</sup>

**Session 3:**

8:30 AM -10:00AM: **Session 3, Part 1: Semiconductors and THz Generation**

Renbao Liu

“High-order THz sideband generation in two-dimensional semiconductors”

10:00 – 10:30AM Coffee break

10:30 – 12:15PM: **Session 3, Part 2: Metamaterials**

Kuniaki Konishi, Makoto Kuwata-Gonokami

“Terahertz polarization control with symmetry-controlled materials and metamaterials”

**Lunch:** 12:20 – 1:30PM

**Poster Session 2:** 1:45 – 3:15PM

**Graphene, Generation, Plasmonics, & Metamaterials**

**Session 4:**

3:30 – 5:00PM: **Session 4, Part 1: Plasmonics, Metamaterials**

Mona Jarrahi

“Plasmonics Enabled High Power Terahertz Sources”

5:00 – 5:30PM Coffee break

5:30 – 7:00PM: **Session 4, Part 2: Terahertz Near-Field**

Tyler Cocker, Max Eisele, Markus Huber, Markus Plankl, Leonardo Viti, Daniel Ercolani, Lucia Sorba, Miriam Vitiello and Rupert Huber

“Pump-probe multi-terahertz nano-spectroscopy with sub-cycle temporal resolution”

## Wednesday March 11<sup>th</sup>

**Session 5:**

8:30 AM -10:00AM: **Session 5, Part 1: Carrier Dynamics in Materials and Devices**

Liang Wu

“Low energy electrodynamics of topological insulator thin films”

10:00 – 10:30AM Coffee break

10:30 – 12:15PM: **Session 5, Part 2: THz Generation and Quantum Cascade Lasers**

Kodo Kawase, Kosuke Murate, Shin'Ichiro Hayashi and Saroj R. Tripathi

“Terahertz wave parametric amplifier”

**Lunch:** 12:20 – 1:30PM

**Poster Session 3:** 1:45 – 3:15PM

**Carrier Dynamics, Metals, Complex Materials, Devices, Spectroscopy**

**Session 6:**

3:30 – 5:00PM: **Session 6, Part 1: Dynamics in Superconductors and Complex Materials**

Ryo Shimano

“Higgs mode in superconductors”

5:00 – 5:30PM Coffee break

5:30 – 7:00PM: **Session 6, Part 2: Waveguides and Field Emission**

Robert McKinney, Yasuaki Monnai, Nicholas Karl, Rajind Mendis and Daniel Mittleman

“Frequency-domain multiplexing in the terahertz range using a leaky waveguide”

## Thursday March 12<sup>th</sup>

**Session 7:**

8:30 AM -10:00AM: **Session 7, Part 1: THz - from Semiconductors to the Cosmos**

Mackillo Kira

“Expanding the scope of terahertz spectroscopy”

Matthias Hohenleutner, Fabian Langer, Olaf Schubert, Sebastian Baierl, Benedikt Urbanek, Christoph Lange and Rupert Huber

“Multi-THz high-harmonic generation by dynamical Bloch oscillations in bulk solids”

10:00 – 10:30AM Coffee break

10:30 – 12:00PM: **Session 7, Part 2: THz - from Semiconductors to the Cosmos**

Alfred Leitenstorfer, Claudius Riek, Denis V. Seletskiy

“The Dawn of (Multi-)Terahertz Quantum Optics”

Brian Keating

“Exploring the Terahertz and mm-wave Cosmos”

**Lunch:** boxed lunch to go

**Excursions:** 12:00PM – 5:00PM

**Banquet Dinner – All Participants: 6:00PM -8:30PM**

## Friday March 13<sup>th</sup>

**Session 8:**

9:00 AM -10:30AM: Conference Summary and Announcements

# Sunday March 8<sup>th</sup> & Monday March 9<sup>th</sup>

Time	Authors	Title / Event
<b>SUNDAY, MARCH 8: Sign-in, Tutorial Session, Welcome Reception</b>		
11:00AM - 5:00PM		<b>REGISTRATION AND SIGN-IN</b>
<b>TUTORIAL SESSION: 2 - 5 PM</b>		
2:00 - 2:36 PM	Charles Schmuttenmaer, Yale University	THz Studies of Carrier Dynamics in Nanomaterials
2:36 - 3:12 PM	Tadao Nagatsuma, Osaka University	Terahertz Wireless Communications
3:12 - 3:48 PM	Tobias Kampfrath, Fritz-Haber-Institute	Material control with intense terahertz pulses
3:48 - 4:24 PM	Andrea Markelz, University at Buffalo	THz spectroscopy of biomolecular dynamics
4:24 - 5:00 PM	Alessandro Tredicucci, University of Pisa	Graphene-based terahertz devices
5:30 - 7:00 PM		<b>WELCOME RECEPTION</b>
<b>MONDAY, MARCH 9: Session 1, Lunch, Poster Session 1</b>		
<b>Session 1, Part 1: THz Photons</b>		
8:30 - 9:00 AM	Miriam Vitiello (Invited)	<b>Photonic engineering of THz quantum cascade resonators</b>
9:00-9:15 AM	Andreas Steiger, Werner Bohmeyer, Karsten Lange and Ralf Müller	Absolute THz Power Measurement of Time-Domain Spectroscopy Systems
9:15-9:30 AM	Ileana-Cristina Benea-Chelmus, Curdin Maissen, Giacomo Scalari and Jerome Faist	Measurement of field correlations of incoherent photon fluctuations with sub-ps resolution
9:30 - 9:45 AM	Zoltan Ollmann, Csaba Lombosi, Gyula Polonyi, Laszlo Palfalvi, Janos Hebling and Jozsef A. Fulop	Generation and Nonlinear Distortion of High-Energy THz Pulses
9:45 - 10:00 AM	Mostafa Shalaby and Christoph Hauri	Terahertz brightness at the extreme: demonstration of a low frequency 8.3 GV/m, lambda-cubic THz bullet
10:00AM - 10:30 AM		<b>COFFEE BREAK</b>
<b>Session 1, Part 2: Near Field and Far Field Spectroscopy</b>		
10:30 - 11:00 AM	Rainer Hillenbrand (Invited)	<b>Infrared nanoscopy and nanospectroscopy – From plasmons to proteins</b>
11:00 - 11:15 AM	Alexander S. Mcleod, Erik van Heumen, Gabriel Ramirez, Siming Wang, Thomas Saerbeck, Stefan Guenon, Michael Goldflam, Loic Anderegg, Priscilla Kelly, Andrew Mueller, Mengkun Liu, Ivan K. Schuller and Dimitri N. Basov	Spatial ordering through a canonical Mott transition revealed by cryogenic nano-imaging
11:15 - 11:30 AM	Oleg Mitrofanov, Filip Dominec, Petr Kužel, John Reno, Igal Brener and Patrick Mounaix	Near-field spectroscopy and imaging of Mie resonances in single TiO <sub>2</sub> microspheres
11:30 - 11:45 AM	Francesco D'Angelo, Zoltan Mics, Mischa Bonn and Dmitry Turchinovich	Ultra-broadband THz time-domain spectroscopy of vibrational modes in common polymers using THz air-photonics
11:45 AM - 12:00 PM	Tomoaki Ichii, Takashi Arikawa, Hiroshi Sato, Susumu Kitagawa and Koichiro Tanaka	Water desorption kinetics in porous coordination polymer with one-dimensional channel structure studied by terahertz time-domain spectroscopy
12:00 - 12:15 PM	Filchito Renee Bacsican, Iwao Kawayama, Hironaru Murakami, Andrew Winchester, Sujoy Ghosh, Saikat Talapatra and Masayoshi Tonouchi	Infrared-Induced Photo-Oxidation in WS <sub>2</sub> Nanosheets Observed using Laser Terahertz Emission Spectroscopy
12:20 - 1:30 PM		<b>LUNCH</b>
1:45 - 3:15 PM		<b>POSTER SESSION 1</b>
<b>MONDAY, MARCH 9: Session 2</b>		
<b>Session 2, Part 1: Superconductors and Complex Materials</b>		
3:30 - 4:00 PM	Martin Dressel, Uwe S. Pracht, Marc Scheffler, Boris Gorshunov, Daniel Sherman, Aviad Frydman, Konstantin Ilin and Michael Siegel (Invited)	<b>THz Spectroscopy of Superconducting Ultrathin Films</b>
4:00 - 4:15 PM	Sam Jones, Nicola Wurz, Michele Failla, Dharmalingham Prabhakaran, Chris McConville and James Lloyd-Hughes	Terahertz electromagnons in spin-diluted cupric oxide: dynamics of twisted spin states
4:15 - 4:30 PM	Hunter Banks, Shawn Mack, Arthur Gossard, Loren Pfeiffer and Mark Sherwin	Scaling of High-order Sideband Generation
4:30 - 4:45 PM	Jesse C. Petersen, Amir D. Farahani, Derek G. Sahota, Ruixing Liang and J. Steven Dodge	Terahertz transient photoconductivity of insulating cuprates
4:45 - 5:00 PM	Bala Murali Krishna Mariserla, Michael K L Man, Soumya Vinod, Catherine Chin, Takaaki Harada, Jaime Taha-Tijerina, Chandra Sekhar Tiwary, Patrick Nguyen, Patricia Chang, Tharangattu N Narayanan, Angel Rubio, Pulickel M Ajayan, Saikat Talapatra and Keshav M Dani	Emergent THz responses in micro-scale 3D van der Waals solids
5:00 - 5:30 PM		<b>COFFEE BREAK</b>
<b>Session 2, Part 2: Nonlinear and Dynamic Phenomena in Complex Materials</b>		
5:30 - 6:00 PM	Koichiro Tanaka (Invited)	<b>Nonlinear optical phenomena induced by femtosecond pulse excitation in topological insulators</b>
6:00 - 6:15 PM	Tobias Kampfrath, Tom Seifert, Marco Battiato, Frank Freimuth, Yuriy Mokrousov, Peter M. Oppeneer, Florin Radu, Ilie Radu, Martin Wolf and Markus Münzenberg	Probing and controlling spin transport in ferromagnets at terahertz frequencies
6:15 - 6:30 PM	Yi Zhu, Frank Chen, Joonkyu Park, Zhonghou Cai, Il Woong Jung, Matthew Highland, Anoop Damodaran, Lane Martin, Paul Evans, Aaron Lindenberg and Haidan Wen	Imaging metamaterial-assisted high-field THz induced structural dynamics by time-resolved hard X-ray nanodiffraction
6:30 - 6:45 PM	Peter Zaiden, Michael Shu, Frank Chen and Aaron Lindenberg	THz-driven nonlinear response and amorphous-to-crystalline transition in phase-change materials
6:45 - 7:00 PM	Stefano Bonetti, Matthias Hoffmann, Zhao Chen, See-Hun Yang, Mahesh Samant, Stuart Parkin and Hermann Durr	Ferromagnetic resonance in thin metallic film induced by single-cycle THz magnetic fields
<b>ADJOURN UNTIL TUESDAY MORNING</b>		

# Tuesday March 10<sup>th</sup>

TUESDAY, MARCH 10: Session 3, Lunch, Poster Session 2 Session 3, Part 1: Semiconductors and THz Generation		
<b>8:30-9:00 AM</b>	<b>Renbao Liu (Invited)</b>	<b>High-order THz sideband generation in two-dimensional semiconductors</b>
9:00 - 9:15 AM	Kento Uchida, Hideki Hirori, Takao Aoki, Christian Wolpert, Koichiro Tanaka, Toshimitsu Mochizuki, Masahiro Yoshida, Hideofumi Akiyama, Loren Pfeiffer and Ken West	Nonlinear Excitonic Interaction of GaAs Quantum Wells with Novel Narrowband Terahertz Waves in Nonperturbative Regime
9:15 - 9:30 AM	Papori Gogoi, Dmytro Kamenskyi, Hans Engelkamp, Jan Kees Maan, Denis Arslanov, Britta Redlich and Alex F.G. van der Meer	THz nonlinear spectroscopy of p-type Germanium in high magnetic fields
9:30 - 9:45 AM	Stephane Boubanga Tombet, Deepika Yadav, Takayuki Watanabe, Victor Ryzhii and Taiichi Otsuji	Terahertz emission in a double-graphene-layer heterostructure
9:45 - 10:00 AM	Yong Sing You, Luke Johnson, Thomas Antonsen and Ki-Yong Kim	Conical THz Radiation by Cherenkov Emission in Plasma
10:00AM - 10:30 AM		<b>COFFEE BREAK</b>
Session 3, Part 2: Metamaterials		
<b>10:30-11:00 AM</b>	<b>Kuniaki Konishi, Makoto Kuwata-Gonokami (Invited)</b>	<b>Terahertz polarization control with symmetry-controlled materials and metamaterials</b>
11:00-11:15 AM	Hou-Tong Chen and Li Huang	Metasurface Terahertz Antireflection
11:15-11:30 AM	Daniel Aschaffenburg, Michael Williams and Charles Schmuttenmaer	THz Transmission Eigenpolarizations of Archimedean Spiral Arrays
11:30 - 11:45 AM	Mary Lou Bailey, Andrew Pierce, Devin Edwards, Aaron Simon, Gerald Ramian and Mark Sherwin	Developing Single Frequency Absorbers for Terahertz Spectroscopy
11:45 AM - 12:00 PM	Huseyin Seren, Jingdi Zhang, Scott Maddox, Xiaoguang Zhao, Kebin Fan, George Keiser, Seth Bank, Xin Zhang and Richard Averitt	A Terahertz Wave Absorber Using Semiconductor Metamaterials
12:00 - 12:15 PM	Giacomo Scalari, Curdin Maissen, Sara Cibella, Roberto Leoni, Christian Reichl, Christophe Charpentier, Werner Wegscheider, Matthias Beck and Jerome Faist	Ultrastrong light matter coupling at THz frequencies and high Q superconducting THz metasurfaces
12:20 - 1:30 PM		<b>LUNCH</b>
<b>1:45 - 3:15 PM</b>		<b>POSTER SESSION 2</b>
TUESDAY, MARCH 10: Session 4 Session 4, Part 1: Plasmonics, Metamaterials		
<b>3:30 - 4:00 PM</b>	<b>Mona Jarrahi (Invited)</b>	<b>Plasmonics Enabled High Power Terahertz Sources</b>
4:00 - 4:15 PM	Salvatore Bagiantè, Fabian Brunner, Justyna Fabiańska, Hans Sigg and Thomas Feurer	Auto-induced frequency shift in a split ring resonator by high THz electric fields
4:15 - 4:30 PM	Filip Dominec, Christelle Kadlec, Hynek Nemeč, Petr Kuzel and Filip Kadlec	Transition between Metamaterial and Photonic Crystal Behavior in Arrays of Dielectric Rods
4:30 - 4:45 PM	Nezih Yardimci, Shang-Hua Yang, Christopher Berry and Mona Jarrahi	Significant Terahertz Radiation Enhancement in Large Area Photoconductive Emitters by Incorporating Plasmonic Contact Electrode Gratings
4:45 - 5:00 PM	Pernille Klarskov, Abebe Tarekegne, Krzysztof Iwaszczuk and Peter Jepsen	Field enhancing coupling between microslits and lattice modes resonant at terahertz frequencies
5:00 - 5:30 PM		<b>COFFEE BREAK</b>
Session 4, Part 2: Terahertz Near-Field		
<b>5:30 - 6:00 PM</b>	<b>Tyler Cocker, Max Eisele, Markus Huber, Markus Plankl, Leonardo Viti, Daniel Ercolani, Lucia Sorba, Miriam Vitello and Rupert Huber (Invited)</b>	<b>Pump-probe multi-terahertz nano-spectroscopy with sub-cycle temporal resolution</b>
6:00 - 6:15 PM	Siyuan Dai, Qiong Ma, Shou-En Zhu, Mengkun Liu, Trond Andersen, Zhe Fei, Michael Goldflam, Martin Wagner, Kenji Watanabe, Takashi Taniguchi, Mark Thiemens, Fritz Keilmann, G. C. A. M. Janssen, Pablo Jarillo-Herrero, Michael Fogler and Dimitri Basov	Tunable polaritons from plasmon-phonon coupling in hyperbolic media
6:15 - 6:30 PM	Vedran Jelic, Peter Nguyen, Haille Sharum, James Hoffman, Christopher Rathje, Mark Freeman, Claus Ropers and Frank Hegmann	THz Scanning Tunneling Microscopy in Ultrahigh Vacuum
6:30 - 6:45 PM	Arkabrata Bhattacharya, Giorgos Georgiou, Simon Sawallich, Christopher Matheisen, Michael Nagel and Jaime Gomez Rivas	Near-Field Microscopy of Semiconductor and Metal THz Resonators
6:45 - 7:00 PM	Mengkun Liu, Aaron J. Sternbach, Martin Wagner, Tetiana V. Slusar, Tai Kong, Sergey L. Bud'ko, Salinporn Kittiwatanakul, Mumtaz M. Qazilbash, Alexander McLeod, Zhe Fei, Elsa Abreu, Jingdi Zhang, Michael Goldflam, Siyuan Dai, Guang-xin Ni, Jiwei Lu, Hans A. Bechtel, Michael C. Martin, Richard D. Averitt, Stuart A. Wolf, H-T. Kim, Paul C. Canfield, D. N. Basov	A systematic infrared near field study of VO <sub>2</sub> single crystals and films
		<b>ADJOURN UNTIL WEDNESDAY MORNING</b>

# Wednesday March 11<sup>th</sup>

WEDNESDAY, MARCH 11: Session 5, Lunch, Poster Session 3		
Session 5, Part 1: Carrier Dynamics in Materials and Devices		
<b>8:30-9:00 AM</b>	<b>Liang Wu (Invited)</b>	<b>Low energy electrodynamics of topological insulator thin films</b>
9:00-9:15 AM	Jingdi Zhang, Jie Yong, Ichiro Takeuchi, Richard L. Greene and Richard D. Averitt	Ultrafast quasiparticle dynamics of the Kondo insulator SmB <sub>6</sub> using THz spectroscopy
9:15-9:30 AM	Stephan Winnerl, Martin Mifendorff, Florian Wendler, Ermin Malic, Andreas Knorr, Harald Schneider and Manfred Helm	Carrier dynamics in Landau-quantized graphene: Evidence for strong Auger scattering
9:30 - 9:45 AM	Manjakavahaoka Razanoelina, Iwao Kawayama and Masayoshi Tonouchi	Parallel Plate Waveguide Terahertz – Time Domain Spectroscopy performance for gold nanosheet characterization
9:45 - 10:00 AM	Coleen Nemes and Charles Schmuttenmaer	Working Dye-Sensitized Solar Cells Studied with Time-Resolved Terahertz Spectroscopy
10:00AM - 10:30 AM		COFFEE BREAK
Session 5, Part 2: THz Generation and Quantum Cascade Lasers		
<b>10:30 - 11:00 AM</b>	<b>Kodo Kawase, Kosuke Murate, Shin'ichiro Hayashi and Saroj R. Tripathi (Invited)</b>	<b>Terahertz wave parametric amplifier</b>
11:00 - 11:15 AM	Hiroyo Okano, Tsubasa Minami, Yu Guan, Saroj Tripathi, Kei Takeya, Masahiko Tani and Kodo Kawase	High power Cherenkov phase-matched terahertz wave generation from a LiNbO <sub>3</sub> ridge waveguide
11:15 - 11:30 AM	Feihu Wang, Anthony Brewer, Joshua Freeman, Jean Maysonave, Souad Moudjji, Raffaële Colombelli, Iman Kundu, Lianhe Li, Edmund Linfield, Giles Davies, Harvey Beere, David Ritchie, Jerome Tignon and Sukhdeep Dhillon	Injection seeding of metal-metal Terahertz quantum cascade lasers
11:30 - 11:45 AM	Markus Roesch, Giacomo Scalari, Matthias Beck and Jerome Faist	Octave-spanning THz quantum-cascade laser
11: 45 AM - 12:00 PM	Dominic Bachmann, Norbert Leder, Markus Rösch, Giacomo Scalari, Matthias Beck, Holger Arthaber, Jerome Faist, Karl Unterrainer and Juraj Darmo	Broadband terahertz amplification in a heterogeneous quantum cascade structure
12:00 - 12:15 PM	Shang Hua Yang, Mohammed Hashemi, Christopher Berry and Mona Jarrahi	High-Aspect Ratio Plasmonic Photoconductive Terahertz Sources
12:20 - 1:30 PM		<b>LUNCH</b>
<b>1:45 - 3:15 PM</b>		<b>POSTER SESSION 3</b>
WEDNESDAY, MARCH 11: Session 6		
Session 6, Part 1: Dynamics in Superconductors and Complex Materials		
<b>3:30 - 4:00 PM</b>	<b>Ryo Shimano (Invited)</b>	<b>Higgs mode in superconductors</b>
4:00 - 4:15 PM	Matthias Hoffmann, Alexander Gray and Hermann Durr	THz field driven phase transition in VO <sub>2</sub> probed by ultrafast X-ray pulses
4:15 - 4:30 PM	Carmine Somma, Klaus Reimann, Michael Woerner, Thomas Elsaesser and Christos Flytzanis	Ultrafast THz Bulk Photovoltaic Effect in Lithium Niobate in the Nonperturbative Regime
4:30 - 4:45 PM	Frank Chen, John Goodfellow, Yi Zhu, Haidan Wen, Aaron Lindenberg and Matthias Hoffmann	Terahertz-driven ultrafast polarization and strain dynamics in ferroelectrics
4:45 - 5:00 PM	Soeren Jensen, Zoltán Mics, Ivan Ivanov, Samet Varol, Dmitry Turchinovich, Frank Koppens, Mischa Bonn and Klaas-Jan Tielrooij	Control of energy relaxation pathways in graphene: carrier-carrier scattering vs phonon emission
5:00 - 5:30 PM		COFFEE BREAK
Session 6, Part 2: Waveguides and Field Emission		
<b>5:30 - 6:00 PM</b>	<b>Robert McKinney, Yasuaki Monnai, Nicholas Karl, Rajind Mendis and Daniel Mittleman (Invited)</b>	<b>Frequency-domain multiplexing in the terahertz range using a leaky waveguide</b>
6:00 - 6:15 PM	Shashank Pandey, Barun Gupta and Ajay Nahata	Localization in Terahertz Plasmonic Waveguides
6:15 - 6:30 PM	Georg Herink, Lara Wimmer and Claus Ropers	Terahertz Field Emission from Metal Nanotips
6:30 - 6:45 PM	Krzysztof Iwaszczuk, Maksim Zalkovskij, Andrew Strikwerda and Peter Jepsen	Ultrafast electron field emission from gold induced by intense THz transients
6:45 - 7:00 PM	Harold Hwang, Nathaniel Brandt, Kebin Fan, Brandt Pein, Xin Zhang, Richard Averitt and Keith Nelson	Terahertz Field Induced Electron Emission and Air Breakdown in Microgaps
		<b>ADJOURN UNTIL THURSDAY MORNING</b>

## Thursday March 12<sup>th</sup> & Friday March 13<sup>th</sup>

THURSDAY, MARCH 12: Session 7, Boxed Lunch, Excursions, BANQUET		
Session 7, Part 1: THz from Semiconductors to the Cosmos		
8:30 - 9:00 AM	<b>Mackillo Kira (Invited)</b>	<b>Expanding the scope of terahertz spectroscopy</b>
9:00 - 9:30 AM	<b>Matthias Hohenleutner, Fabian Langer, Olaf Schubert, Sebastian Baierl, Benedikt Urbanek, Christoph Lange and Rupert Huber (Invited)</b>	<b>Multi-THz high-harmonic generation by dynamical Bloch oscillations in bulk solids</b>
9:30-9:45 AM	Christoph Poellmann, Jean-Michel Ménard, Michael Porer, Ursula Leierseder, Elisabeth Galopin, Aristide Lemaître, Alberto Amo, Jacqueline Bloch and Rupert Huber	Revealing the THz fine structure of an exciton-polariton condensate
9:45 - 10:00 AM	Qi Zhang, Weilu Gao, John Watson, Michael Manfra and Junichiro Kono	Terahertz spectroscopy of two-dimensional electron-hole pairs:Stability of high-density excitons in high magnetic fields
10:00 - 10:30 AM		COFFEE BREAK
Session 7, Part 2: THz from Semiconductors to the Cosmos		
10:30-11:00 AM	<b>Alfred Leitenstorfer, Claudius Riek, Denis V. Seletskiy (Invited)</b>	<b>The Dawn of (Multi-)Terahertz Quantum Optics</b>
11:00 - 11:15 AM	Sebastian Maehrlein, Ilie Radu, Pablo Maldonado, Michael Gensch, Alexandra M. Kalashnikova, Roman V. Pisarev, Peter M. Oppeneer, Martin Wolf and Tobias Kampfrath	Ultrafast demagnetization of a ferrimagnetic insulator driven by resonant phonon excitation
11:15 - 11:30 AM	Benjamin Ofori-Okai, Prasahnt Sivarajah, W. Ronny Huang and Keith Nelson	High Power THz Generation Using a Reflective Stair-step Echelon
11:30 AM - 12:00 PM	<b>Brian Keating (Invited)</b>	<b>Exploring the Terahertz and mm-wave Cosmos</b>
NOON		<b>BOXED LUNCH TO GO</b>
12:00 - 5:00 PM		<b>EXCURSIONS</b>
6:00 - 8:30 PM		<b>BANQUET DINNER</b>
FRIDAY, MARCH 13: Conference Summary and Announcements		
9:00 - 10:30 AM	<b>Conference Summary, Announcements for OTST 2017</b>	



# Poster Session 1: Monday March 9<sup>th</sup>

## Generation, Near-Field, Spectroscopy and Applications

### 1:45 – 3:15PM Posters 1 – 19

Poster #	Authors	Title
1	Dogeun Jang, Hyyong Suk and Ki-Yong Kim	Advanced Algorithm for THz Field Retrieval in Single-shot THz detection
2	Carlo Vicario	High field tunable over the entire THz gap frequencies
3	Mostafa Shalaby and Christoph Hauri	Spectrally intense THz source based on triangular selenium
4	Jian Lu, Harold Hwang, Xian Li, Seung-Heon Lee, O-Pil Kwon and Keith Nelson	Tunable multi-cycle THz generation in organic crystal HMQ-TMS
5	Kouji Nawata, Takashi Notake, Hideki Ishizuki, Yu Tokizane, Yuma Takida, Shin'Ichiro Hayashi, Takunori Taira and Hiroaki Minamide	Efficient wavelength-conversion from terahertz to near infrared using a slant-stripe-type periodically poled LiNbO <sub>3</sub>
6	Athanasios Margiolakis, Zhen-Yu Zhao, Peter Hale, Julien Madeo, Michael Man, Quan-Zhong Zhao, Wei Peng and Keshav Dani	Enhanced terahertz emission from a femtosecond-laser-ablated photoconductor
7	Zhaohui Zhai, Sencheng Zhong, Liguozhu, Qixian Peng and Zeren Li	Polarization State of Terahertz Pulses Generated by TFTP Scheme Using Femtosecond Laser
8	Lyubov Titova, Cary Pint, Qi Zhang, Robert Hauge, Junichiro Kono and Frank Hegmann	THz generation in aligned carbon nanotube arrays
9	Masaaki Tsubouchi, Keisuke Nagashima, Fumiko Yoshida, Yoshihiro Oshi and Momoko Maruyama	Contact grating device with Fabry-Perot resonator for effective THz light generation
10	Magesh Kumar, Manoj Kumar and Min Chen	Terahertz radiation from plasma filament generated by two-color laser gas plasma interaction
11	Xavier Ropagnol, Mohammadreza Khorasaninejad, Mohsen Raeszadeh, Safieddin Safavi-Naeini, Matt Reid and Tsuneyuki Ozaki	Factors that influence the generation of intense half-cycle, 5.7 $\mu$ J THz Pulses
12	Abel H. Woldegeorgis, Sven Herzer, Pushkar Singh, Gerhard G. Paulus and Amrutha Gopal	Observation of terahertz radiation from a laser-driven ion accelerator by Smith-Purcell effect
13	Shuchang Liu, Oleg Mitrofanov and Ajay Nahata	Enhanced THz Field Confinement and Broadband Concentration Using a Split Tapered Aperture and Its Application to Near Field Imaging
14	Peter H. Nguyen, Christopher Rathje, Vedran Jelic, Claus Ropers and Frank A. Hegmann	Coupling THz Pulses to a Scanning Tunneling Microscope
15	Ken Wood	Passive Imaging at 350GHz
16	Sergiu Amarie	20-70 THz nanoscope
17	Yu Guan, Manabu Yamamoto, Toshiyuki Kitazawa, Saroj R. Tripathi, Kei Takeya and Kodo Kawase	Development of THz barcode for security applications
18	Andrew Pierce, Hunter Banks, Nikolay Agladze and Mark Sherwin	Frequency-Domain Vector Reflectometry up to 0.7 THz
19	Liping Liu, Maojiang Song, Fei Yang, Li Shen, Feng Han and Pengfei Hu	Noise and dynamic range analysis in THz time-domain spectroscopy with 1560 nm wavelength in free space

# Poster Session 1: Monday March 9<sup>th</sup>

## Generation, Near-Field, Spectroscopy and Applications

### 1:45 – 3:15PM Posters 20 – 36

20	Patrick Tekavec, Vladimir Kozlov, Ian McNee, Yun-Shik Lee and Konstanin Vodopyanov	Real Time Imaging at 1.5 THz Based on Frequency Upconversion
21	Zhang Tianyao, Xiaoyan Zhao and Zhaohui Zhang	Contribution of inter-molecular interactions to the terahertz absorption simulation of glutamine
22	Harald Puehringer, Hans Lohninger, Michael Pflieger and Stefan Katletz	MONITORING THE DEHYDRATION LEVEL OF THIN ORGANIC LAYERS WITH TERAHERTZ HYPER SPECTRAL IMAGING
23	Shunsuke Kawabe, Munetoshi Seki and Hitoshi Tabata	Evaluation of hydration of water-soluble polymer using terahertz spectroscopy
24	Michael Pflieger, Alexander Lepschi, Harald Puehringer and Stefan Katletz	Detecting the Phase Transition of Paraffin with THz Time Domain Spectroscopy
25	Dook van Mechelen	Dynamics of the Stratification Process in Drying Colloidal Dispersions Studied by Terahertz Time-Domain Spectroscopy
26	Lei Chen, Y. Zhang, Q. Guo, D. Zhang, X. Zhong, J. Yuan	Terahertz Electro-Optic properties of PbZr <sub>0.52</sub> Ti <sub>0.48</sub> O <sub>3</sub> and BaTiO <sub>3</sub> ferroelectric thin films
27	Kevin Regan, Staff Sheehan, Christopher Koenigsmann and Charles Schmuttenmaer	Ultrafast Charge Carrier Dynamics of Tungsten (VI) Trioxide for Water Oxidation
28	Diyar Talbayev, Kate H. Heffernan, Xueyu Zhang and Arunava Gupta	The role of spin fluctuations in the conductivity of CrO <sub>2</sub>
29	Zuanming Jin, Alexander Tkach, Frederick Casper, Victor Spetter, Hubert Grimm, Andy Thomas, Tobias Kampfrath, Mischa Bonn, Mathias Kläui and Dmitry Turchinovich	THz probes of fundamental magneto-transport in metals
30	Gaurav Tulsyan, Chih-Yu Jen, Jianming Dai, Xi-Cheng Zhang and Christiaan Richter	The terahertz refractive index of doped silicon
31	Tianwu Wang, Krzysztof Iwaszczuk, David Cooke and Peter Jepsen	Terahertz conductivity of electron in water
32	Dmytro Kamenskyi, Sergii Poperezhai, Pappi Gogoi, Hans Engelkamp, Jan Maan, Rienk Jongma, Denis Arslanov and Volodymyr Kuf'ko	Non-linear spin lattice dynamic in binary molybdates
33	David Purschke, Mengxing Na and Andrew Longman	Spectrally-Resolved Photoquenching Dynamics in GaAs
34	Masaya Nagai, Eiichi Matsubara, Masaaki Ashida, Keigo Kawase, Akinori Irizawa, Ryukou Kato and Goro Itoyama	Non-thermal burst of organic powder using picosecond THz free electron laser pulses
35	Brandt Pein, Leora Cooper, Harold Hwang and Keith Nelson	THz-Induced Disintegration of the Explosive RDX
36	Yu Mukai, Hideki Hirori, Takafumi Yamamoto, Hiroshi Kageyama and Koichiro Tanaka	Nonlinear Precessional Motion of Antiferromagnetic Spin Resonance Induced by Intense Terahertz Magnetic-Field

## Poster Session 2: Tuesday March 10<sup>th</sup>

### Graphene, Generation, Plasmonics, & Metamaterials

#### 1:45 – 3:15PM Posters 1 – 19

Poster #	Authors	Title
1	Jingdi Zhang, Mengkun Liu, Martin Wagner, D.N. Basov and Richard D. Averitt	THz pump-THz probe study of electrostatically gated graphene
2	Filchito Renee Bagsican, Iwao Kawayama, Andrew Winchester, Sujoy Ghosh, Minjie Wang, Hironaru Murakami, Robert Vajtai, Pulickel Ajayan, Junichiro Kono, Saikat Talapatra and Masayoshi Tonouchi	Laser THz Emission Spectroscopy of Gas Adsorption-Desorption Dynamics in Graphene
3	Ivan Ivanov, Toby Hallam, Zoltan Mics, Georg Duesberg, Mischa Bonn and Dmitry Turchinovich	Anisotropic photoconductivity of massless carriers in mechanically modified graphene
4	Zoltán Mics, Klaas-Jan Tielrooij, Khaled Parvez, Soeren Jensen, Ivan Ivanov, Frank Koppens, Xinliang Feng, Klaus Müllen, Mischa Bonn and Dmitry Turchinovich	Inherent resistivity of graphene to strong THz fields
5	Hassan Hafez, Ibraheem Al-Naib, Riley McGouran, Marc Dignam, Yoshiaki Sekine, Katsuya Oguri, Satoru Tanaka, Fumio Komori, Hiroki Hibino and Tsuneyuki Ozaki	Nonlinear Terahertz Field-induced Carrier Dynamics in Photoexcited Bilayer Graphene
6	Oleg Mitrofanov, Wenlong Yu, Yuxuan Jiang, Igal Brener, Wei Pan, Claire Berger, Walter de Heer and Zhigang Jiang	THz surface waves on graphene bow-tie antennas
7	Yuki Takebayashi, Takahisa Togashi, Keisuke Takano, Masanori Hangyo, John Young and Takehito Suzuki	Negative Refractive Index by Paired Metal Cut Wires with an Asymmetric Alignment for Terahertz Superlens
8	Sebastian Diebold, Kazuisao Tsuruda, Jaeyoung Kim, Toshikazu Mukai, Masayuki Fujita and Tadao Nagatsuma	Maximizing Output Power from Resonant Tunneling Diodes
9	Akira Satou, Tetsuya Kawasaki, Shinya Hatakeyama, Stephane Boubanga Tombet, Tetsuya Suemitsu, Guillaume Ducournau, Dominique Coquillat, Wojciech Knap, Denis Fateev, Vyacheslav Popov, Yahya Meziani and Taiichi Otsuji	Geometrical Dependences of Ultrahigh Responsivity and Its Broadband Characteristics of InP-Based Asymmetric Dual-Grating-Gate High-Electron-Mobility Transistors
10	Ning Wang and Mona Jarrahi	Heterodyne Terahertz Receiver Based on Plasmonic Photomixers
11	Wataru Terashima and Hideki Hirayama	Realization of GaN-based Terahertz Quantum Cascade Laser with Pure 3 Levels Laser System
12	Yingxin Wang, Ziran Zhao, Jia-Lin Zhu, Jinquan Wei, Zhiqiang Chen and Jia-Lin Sun	Polarization-Sensitive Terahertz Response of the Carbon Nanotube Macrobundle-Metal Junction
13	Giorgos Georgiou, Arkabrata Bhattacharya and Jaime Gomez-Rivas	Photo-generation of THz plasmonic structures on flat semiconductor layers
14	Julien Madeo, Peter Hale, Catherine Chin, Sukhdeep Dhillon, Juliette Mangeney, Jérôme Tignon and Keshav Dani	20 THz broadband generation using semi-insulating GaAs interdigitated photoconductive antennas
15	Kazuue Fujita, Akio Ito, Masahiro Hitaka, Tadataka Edamura, Masamichi Yamanishi, Seungyong Jung, Karun Vijayraghavan and Mikhail Belkin	Room-temperature Terahertz Quantum Cascade Laser Sources with a Common Dual-upper-state Active Region
16	Sarah Houver, Pierrick Cavallie, Margaux Renaudat Saint-Jean, Maria Amanti, Carlo Sirtori, Lianhe Li, Edmund Linfield, Giles Davies, Armand Lebreton, Jerome Tignon and Sukhdeep Dhillon	Terahertz - Optical sideband generation up to room temperature with mid-infrared quantum cascade lasers
17	V. M. Muravev, P. A. Gusikhin, I. V. Andreev, I. V. Kukushkin	Novel relativistic plasma excitations in a gated two-dimensional electron system
18	H. T. Stinson, J. S. Wu, B. Y. Jiang, Z. Fei, A. S. Rodin, B. Chapler, A. S. Mcleod, A. Castro Neto, Y. S. Lee, M. M. Fogler, D. N. Basov	Terahertz nano-spectroscopy and imaging of superfluid surface plasmons in conventional and anisotropic superconductors
19	Peter Qiang Liu, Isaac Luxmoore, Sergey Mikhailov, Nadya Savostiyanova, Federico Valmorra, Geoffrey Nash and Jerome Faist	Tunable Terahertz Metamaterials Employing Arrays of Complementary Split-ring Resonators Coupled to Localized Surface Plasmons in Graphene Micro-ribbons

## Poster Session 2: Tuesday March 10<sup>th</sup>

### Graphene, Generation, Plasmonics, & Metamaterials

#### 1:45 – 3:15PM Posters 20 – 36

20	George Keiser, Jingdi Zhang, Xiaoguang Zhao, Xin Zhang and Richard Averitt	A Superconducting Metamaterial Saturable Absorber at Terahertz Frequencies
21	Xiaoguang Zhao, Jingdi Zhang, Kebin Fan, Huseyin Seren, Grace Metcalfe, Michael Wraback, Xin Zhang and Richard Averitt	Nonlinear Terahertz Metamaterial Perfect Absorber by Impact Ionization in GaAs
22	Caihong Zhang	Highly-sensitive flexible terahertz sensor based on metamaterial
23	Biaobing Jin	Linear and nonlinear THz transmission through superconducting hole array
24	Andrew Strikwerda, Maksim Zalkovskij, Krzysztof Iwaszczuk, Dennis Lorenzen and Peter Uhd Jepsen	Permanently Reconfigured Metamaterials due to Terahertz Induced Mass Transfer of Gold
25	Jinqi Wang, Shuchang Liu, Sivaraman Guruswamy and Ajay Nahata	Free-Standing Three-Dimensional Terahertz Metamaterials
26	Jinqi Wang, Kanagasundar Appusamy, Sivaraman Guruswamy and Ajay Nahata	Reconfigurable Terahertz Metamaterials Controlled via an Electrochemical Process
27	Liming Liu, Wen-Chen Chen, David Powell, Willie Padilla, Fouad Karouta, Haroldo Hattori, Dragomir Neshev and Ilya Shadrivov	Mechanically tunable terahertz metamaterials
28	Daniel Aschaffenburg, Michael Williams and Charles Schmuttenmaer	Experimental and Simulated Magnetoelectric Response of Archimedean Spirals
29	Seongsin Margaret Kim, Mohammad Hokmabadi, Ju-Hyung Kim, Soner Balci and Patrick Kung	Flexible and Polarization Controllable THz Stereometamaterial Absorber
30	C. A. Downing, M. G. Robinson, M. E. Portnoi	Nanohelices as superlattices: THz transitions and Bloch Oscillations
31	Mohammed Reza Hashemi, Shang-Hua Yang, Tongyu Wang, Nelson Sepulveda and Mona Jarrahi	Voltage-Controlled Terahertz Phase Modulator based on Vanadium Dioxide
32	Mostafa Shalaby, Christoph Hauri and Carlo Vicario	Terahertz light bullet-induced nonlinearity in a thin gold film
33	Manjakavahoaka Razanoelina, Iwao Kawayama and Masayoshi Tonouchi	Gold Ultrathin film for Terahertz antireflection coating.
34	Satoshi Ihara, Shunri Oda, Yukio Kawano and Takashi Iguchi	Miniaturization of bull's eye antenna structure with solid immersion method
35	Yusuke Yoshioka, Yuya Nakagawa, Manabu Tsujimoto and Itsuhiro Kakeya	Manipulating polarization of terahertz waves from high-Tc superconductor intrinsic Josephson junctions
36	Salvatore Bagiantè, Yannik Waeber, Justyna Fabiańska, Florian Enderli, Hans Sigg and Thomas Feurer	Out-of-plane THz electric field enhancement in vertical nano-slit arrays

## Poster Session 3: Wednesday March 11<sup>th</sup>

### Carrier Dynamics, Metals, Complex Materials, Devices, Spectroscopy

#### 1:45 – 3:15PM Posters 1 – 16

Poster #	Authors	Title
1	Viacheslav Popov, Denis Fateev, Akira Satou, Stephane Boubanga-Tombet, Yuki Kurita, Takayuki Watanabe and Taiichi Otsuji	Terahertz Photocurrents Generated by Non-Centrosymmetric Plasmon Modes in a Two-Dimensional Electron System
2	Hynek Nemeč and Petr Kužel	Transition between Localized and Delocalized Terahertz Response of Charges in Semiconductor Nanostructures Studied by Monte-Carlo Calculations
3	Eiichi Matsubara, Tomohide Morimoto, Masaya Nagai and Masaaki Ashida	Non-Drude response of dense photoinduced carriers in InSb revealed by ultrabroadband infrared time-resolved spectroscopy
4	Petr Kuzel, Hynek Nemeč, Petr Maly, Daniel Hiller and Sebastian Gutsch	Ultrafast carrier transport in silicon nanocrystal superlattices
5	Volodymyr Skoromets, Hynek Nemeč, Petr Kužel, Kristina Peters and Dina Fattakhova-Rohlfing	Charge transport in Sb-doped SnO <sub>2</sub> nanoparticles studied by terahertz spectroscopy
6	Abebe Tarekegne Tarekegne, Krzysztof Iwaszczuk, Maksim Zalkovskij, Andrew Strikwerda and Peter Jepsen	Impact ionization in high resistivity silicon induced by an intense THz field
7	Takashi Arikawa, Katsuya Hyodo, Yutaka Kadoya and Koichiro Tanaka	Terahertz-induced Electron Localization and Delocalization in a Quantum Hall System
8	Seongsin Margaet Kim, Soner Balci, Woo-Jung Lee, Ju-Hyung Kim, Mohammad Hokmabadi, Patrick Kung and Mann-Ho Cho	Silicon-Germanium and Germanium Nanowires for Efficient THz Emission
9	Tomoyuki Hirano, Shunri Oda and Yukio Kawano	InGaAs/InAlAs frequency-tunable THz detector with built-in modulation
10	Michele Failla, Maksym Myronov, Christopher Morrison, David Leadley and James Lloyd-Hughes	Terahertz time-domain cyclotron spectroscopy of the cubic Rashba spin orbit interaction in strained germanium quantum wells with high mobility heavy holes
11	Brendan McNamara, Chih-Yu Jen and Christiaan Richter	The terahertz refractive index of p-type silicon
12	Giulia Folpini, Drew Morrill, Carmine Somma, Klaus Reimann, Michael Woerner, Thomas Elsaesser and Klaus Biermann	Coherent Control of Intersubband Excitations by a Nonresonant THz Pulse
13	Tyler Cocker, Devin Baillie, Miles Buruma, Lyuba Titova, Richard Sydora, Frank Marsiglio and Frank Hegmann	Microscopic origin of the Drude-Smith model
14	David A. Valverde-Chavez, Carlito S. Ponseca Jr, Constantinos Stoumpos, Arkady Yartsev, Mercouri G. Kanatzidis, Villy Sundström and David G. Cooke	Ultrafast charge generation in single crystal organo-metal halide perovskite
15	C. Vicario, P. M. Derlet, B. Tudu, J. Luning and C. P. Hauril	Femtosecond magnetization in ferromagnet coupled to strong THz field
16	Elsa Abreu, Siming Wang, Gabriel Ramirez, Mengkun Liu, Jingdi Zhang, Kun Geng, Ivan K. Schuller and Richard D. Averitt	Dynamic scaling of the conductivity in photoexcited V <sub>2</sub> O <sub>3</sub>

**Poster Session 3: Wednesday March 11<sup>th</sup>**  
**Carrier Dynamics, Metals, Complex Materials, Devices, Spectroscopy**  
**1:45 – 3:15PM Posters 17 – 33**

17	Paul Cunningham, Kathleen McCreary, Aubrey Hanbicki, Berend Jonker and Michael Hayden	Ultra-fast carrier dynamics in large area, CVD deposited, mono- and few-layer films of metal dichalcogenides
18	Lauren Gingras, Marcel Georjin and David Cooke	Dynamic light-induced THz resonators in a waveguide
19	Prasahnt Sivarajah, Benjamin Ofori-Okai, Stephanie Teo, Christopher Werley and Keith Nelson	Enabling the Rapid Development of On-Chip THz Gradient Index Devices through Investigation of the Homogenization Limit
20	Maciej Sypek, Jaroslaw Suszek, Dominique Coquillat and Wojciech Knap	3D printed flat optics for THz linear scanners
21	Xiaoli Tang, Zhuzheng Yu, Jian Chen, Alexander Argyros, Boris Kuhlmeiy and Yiwei Shi	Elliptical Metallic Hollow Fiber Inner-coated With Nonuniform Dielectric Layer
22	Yudai Kishi, Masaya Nagai, Mamoru Mita, John Young, Keisuke Takano, Masanori Hangyo and Takehito Suzuki	Terahertz Polarizer Consisting of Laminated Hollow Structure with High Extinction Ratio and Transmission Power
23	Jiang Li, Lu Chai, Li-Guo Zhu, Qi-Xian Peng and Ze-Ren Li	Efficient THz generation by chirped-controlled femtosecond pulses based on optical rectification
24	Michael Bakunov, Eugene Mashkovich and Elena Svinkina	Unidirectional Cherenkov radiation for improved terahertz generation in the Si-prism-coupled LiNbO <sub>3</sub> layer
25	Darren Valovcin, Mark Sherwin and Nutan Gautam	Reflected Harmonic Generation in the THz Regime
26	Manabu Tsujimoto, Hitoshi Kambara, Takuya Kishimoto, Yifan Wen, Yusuke Yoshioka, Yuya Nakagawa and Itsuhiro Kakeya	Dynamic Control of Temperature Distributions in Stacks of Intrinsic Josephson Junctions for Intense Terahertz Emission
27	Mostafa Shalaby and Christoph Hauri	Air nonlinearity triggered by an ultraintense sub-5 THz light bullet
28	Sourav Roy, Caihong Zhang, Yuri Avetisyan, Iwao Kawayama, Hironaru Murakami and Masayoshi Tonouchi	Development of Time Domain Narrow Band Terahertz Wave Generation System
29	Yungjun Yoo, Donghoon Kuk, Howard Milchberg and Ki-Yong Kim	Scalable THz Generation with Multi-Filamentation in Air and THz Beam Profiling
30	Michael Williams, Daniel Aschaffenburg and Charles Schmittenmaer	THz Spectroscopy of Intermolecular Vibrations in Hydrophobic Amino Acids
31	Xiaoyan Zhao, Zhaohui Zhang, Tianyao Zhang and Han Zhang	Characterization of Cocrystals Formed by Grinding Amino Acids through Terahertz Time-Domain Spectroscopy
32	Harald Puehringer, Hans Lohninger, Michael Pflieger and Stefan Katletz	TERAHERTZ HYPER SPECTRAL IMAGING: FROM SELF-MADE PELLETS TO REAL LIFE SAMPLES AND THE APPLICATION OF CHEMOMETRIC METHODS
33	V. K. Thorsmølle, G. Rothenberger, D. Topgaard, J. C. Brauer, D.-B. Kuang, S. M. Zakeeruddin, Björn Lindman, M. Grätzel, J.-E. Moser	Terahertz Investigations of Extraordinary Conduction in a Redox Active Ionic Liquid