

# **2020 45th International Conference on Infrared, Millimeter, and Terahertz Waves (IRMMW-THz 2020)**

**Buffalo, New York, USA  
8 – 13 November 2020**

**Pages 1-453**



**IEEE Catalog Number: CFP20IMM-POD  
ISBN: 978-1-7281-6621-6**

**Copyright © 2020 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP20IMM-POD
ISBN (Print-On-Demand):	978-1-7281-6621-6
ISBN (Online):	978-1-7281-6620-9
ISSN:	2162-2027

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# TABLE OF CONTENTS

<p>TERAHERTZ LIGHTS UP THE NANOSCALE: OPTOELECTRONIC CHARACTERISATION OF LOW-DIMENSIONAL MATERIALS VIA ULTRAFAST TERAHERTZ SPECTROSCOPY AND MICROSCOPY .....</p> <p style="padding-left: 20px;"><i>Jessica L Boland</i></p>	1
<p>TERAHERTZ PHYSICS OF GRAPHENE: FROM LINEAR CONDUCTIVITY TO HIGH-HARMONICS GENERATION .....</p> <p style="padding-left: 20px;"><i>Dmitry Turchinovich</i></p>	2
<p>MACHINE LEARNING FOR EXOTIC METASURFACES .....</p> <p style="padding-left: 20px;"><i>Yang Deng, Simiao Ren, Kebin Fan, Jordan M. Malof, Willie J. Padilla</i></p>	4
<p>DARK PHOTON SEARCH WITH A GYROTRON AND A TRANSITION EDGE SENSOR.....</p> <p style="padding-left: 20px;"><i>A. Miyazaki, P. Spagnolo</i></p>	5
<p>550 GHZ SCANNING LENS PHASED ARRAY .....</p> <p style="padding-left: 20px;"><i>Sjoerd Bosma, Maria Alonso-Delpino, Cecile Jung-Kubiak, Nuria Llombart</i></p>	7
<p>SUB-MM-WAVE SUPERCONDUCTING ON-CHIP FILTER BANK FOR ASTRONOMY .....</p> <p style="padding-left: 20px;"><i>A. Pascual Laguna, K. Karatsu, D. J. Thoen, V. Murugesan, A. Endo, J. J. A. Baselmans</i></p>	8
<p>PERFORMANCE AND DEPLOYMENT STATUS OF MUSCAT: A 1500-PIXEL LEKID-BASED MM-WAVE CAMERA FOR THE LARGE MILLIMETER TELESCOPE .....</p> <p style="padding-left: 20px;"><i>T L R Brien, P Ade, P S Barry, E Castillo-Dominguez, D Ferrusca, V Gómez, P Hargrave, A Hornsby, D Hughes, P Mauskopf, A Papageorgiou, E Pascale, S Rowe, M Tapia, C Tucker, M Velázquez, S Ventura, S Doyle</i></p>	9
<p>LOW-NOISE THZ-RANGE NB BASED SIS RECEIVERS FOR RADIO ASTRONOMY .....</p> <p style="padding-left: 20px;"><i>Kirill Rudakov, Andrey Khudchenko, Lyudmila Filippenko, Pavel Dmitriev, Andrey Baryshev, Ronald Hesper, Valery Koshelets</i></p>	10
<p>TERAHERTZ DRIVEN ULTRAFAST ELECTRON SOURCES .....</p> <p style="padding-left: 20px;"><i>Franz X. Kärtner</i></p>	12
<p>TERAHERTZ DRIVEN BUNCH COMPRESSION AND LONGITUDINAL DIAGNOSTICS OF 100 KEV ELECTRON BEAMS .....</p> <p style="padding-left: 20px;"><i>Daniel S. Lake, Oliver J. Finlay, Vasileios Georgiadis, Morgan T. Hibberd, David A. Walsh, Graeme Burt, Darren M. Graham, Steven P. Jamison</i></p>	14
<p>THZ PHOTOGUN TRANSVERSELY PUMPED BY TWIN SINGLE-CYCLE PULSES.....</p> <p style="padding-left: 20px;"><i>N. H. Matlis, T. Kroh, T. Rohwer, H. Dinter, Max Kellermeier, M. Fakhari, M. Hemmer, U. Demirbas, H. Çankaya, M. Pergament, R. Aßmann, F. X. Kärtner</i></p>	15
<p>A THZ-DRIVEN FIELD EMISSION ELECTRON GUN.....</p> <p style="padding-left: 20px;"><i>Samantha M. Lewis, Julian Merrick, Mohamed A. K. Othman, Andrew Haase, Sami Tantawi, Emilio A. Nanni</i></p>	17
<p>TERAHERTZ TOMOGRAPHY WITH THE CONJUGATE GRADIENT LEAST SQUARES ALGORITHM.....</p> <p style="padding-left: 20px;"><i>Karl H. May, Andreas Keil, Georg Von Freymann, Fabian Friederich</i></p>	19

NONDESTRUCTIVE TERAHERTZ SHAPE RESTORATION OF 3D OBJECTS WITH PHOTO-SOURCE-COUPLED ULTRABROADBAND CARBON NANOTUBES SCANNERS .....	21
<i>S. Wada, K. Li, R. Utaki, M. Sun, Y. Kawano</i>	
CONTINUOUS-WAVE TERAHERTZ TOTAL INTERNAL REFLECTION DIGITAL HOLOGRAPHY .....	23
<i>Duoxuan Ma, Dayong Wang, Lu Rong, Yaya Zhang, Jie Zhao, Yunxin Wang</i>	
TERAHERTZ DIFFRACTIVE REFLECTION PHASE IMAGING .....	25
<i>Nikolay V. Petrov, Jean-Baptiste Perraud, Adrien Chopard, Jean-Paul Guillet, Olga A. Smolyanskaya, Patrick Mounaix</i>	
CONTINUOUS-WAVE TERAHERTZ SELF-REFERENCING DIGITAL HOLOGRAPHY BASED ON FRESNEL'S MIRRORS .....	26
<i>Yaya Zhang, Dayong Wang, Lu Rong, Duoxuan Ma, Yunxin Wang, Jie Zhao</i>	
METASURFACE BROADBAND POLARIZATION CONVERTERS TOWARDS TERAHERTZ CIRCULAR DICHROISM SPECTROSCOPY .....	27
<i>Hou-Tong Chen</i>	
HIGH REFRACTIVE INDEX METASURFACE FOR TERAHERTZ FLAT OPTICS.....	28
<i>K. Endo, J. Kim, T. Suzuki</i>	
ALL-DIELECTRIC METAMATERIAL ANALOGUE FOR EIT EFFECTS IN TERAHERTZ RANGE .....	30
<i>Tian Ma, Qiuping Huang, Yalin Lu</i>	
TERAHERTZ METALENS FOR MANIPULATING FOCAL POINT AND IMAGING .....	31
<i>Xiaofei Zang, Lin Chen, Yan Peng, Zuanming Jin, Yiming Zhu</i>	
PHONON KINETICS AT THE SOLID TO LIQUID PHASE TRANSITION .....	33
<i>Alex Davie, Farah Vandrevala, Yanting Deng, Deepu George, Eric Sylvester, Timothy Korter, Erik Einarsson, Jason Benedict, Andrea Markelz</i>	
BOSON PEAK INVESTIGATION OF UNUSUALLY DISPROPORTIONATED AMORPHOUS SILICON MONOXIDE VIA TERAHERTZ SPECTROSCOPY .....	34
<i>Tatsuya Mori, Maiko Masubuchi, Yasuhiro Fujii, Suguru Kitani, Shinji Kohara, Akihiko Hirata, Hiroko Tokoro, Shin-Ichi Ohkoshi, Akitoshi Koreeda, Hitoshi Kawaji, Seiji Kojima</i>	
QUANTUM ENGINEERING OF PLASMON MODES.....	36
<i>A. Haky, A. Vasanelli, Y. Todorov, Grégoire Beaudoin, Konstantinos Pantzas, Isabelle Sagnes, C. Sirtori</i>	
DIGITAL SIGNAL PROCESSING FOR THE EVENT HORIZON TELESCOPE.....	38
<i>Jonathan Weintraub</i>	
TERAHERTZ TIME-DOMAIN ATTENUATED TOTAL REFLECTION SPECTROSCOPY USING FLOW-THROUGH METHOD FOR CONTINUOUS ANALYSIS OF DEHYDRATION PROCESS.....	40
<i>K. Horita, K. Akiyama, T. Sakamoto, K. Takahashi, H. Satozono</i>	
ALIGNMENT SENSITIVITY OF A WR-3.4 BAND QUASIOPTICAL SYSTEM FOR CORNEAL WATER CONTENT SENSING.....	42
<i>Mariangela Baggio, Aleks Tamminen, Irina Nefedova, Samu-Ville Pälli, Juha Ala-Laurinaho, Zachary Taylor</i>	

TERAHERTZ PULSED IMAGING OF DEHYDRATED HUMAN BREAST CANCER SAMPLES .....	44
<i>Mohamed Boutaayamou, Delphine Cerica, Jacques G. Verly</i>	
INFLUENCE OF PHOTO-EXCITED CHARGE CARRIERS IN SILICON WAFER IN A TWO- COLOR LASER-INDUCED AIR PLASMA TERAHERTZ EMISSION .....	46
<i>Christian B. Sørensen, Léo Guiramand, A. Minasyan, C. Lacroix, Jérôme Degert, Marc Tondusson, Esben Skovsen, Eric Freysz, Emmanuel Abraham</i>	
GENERATION OF PERFECT VECTOR VORTEX BEAMS USING DIFFRACTIVE OPTICAL ELEMENTS .....	48
<i>Yulia Yu. Choporova, Natalia D. Osintseva, Boris A. Knyazev, Vladimir S. Paveliev, Konstantin N. Tukmakov</i>	
INVERSE DESIGNED FLAT OPTICS FOR IMAGING APPLICATIONS IN THE IR AND BEYOND .....	50
<i>Sourangsu Banerji, Monjurul Meem, Apratim Majumder, Juan C. Garcia, Philip Hon, Christian Pies, Timo Oberbiermann, Rajesh Menon, Berardi Sensale-Rodriguez</i>	
SYSTEM NEP VERIFICATION OF A WIDEBAND THZ DIRECT DETECTOR IN CMOS .....	51
<i>S. L. Van Berkel, E. S. Malotaux, C. De Martino, M. Spirito, D. Cavallo, A. Neto, N. Llombart</i>	
CAVITY-BASED TERAHERTZ PHOTOCONDUCTIVE SOURCES FOR REAL-TIME TERAHERTZ IMAGING .....	52
<i>J. Hawecker, K. Maussang, A. Minasyan, J. Palomo, J-M. Manceau, R. Colombelli, I. Sagnes, J. Tignon, J. Mangeney, S. Dhillon</i>	
SILICON-INTEGRATED SINGLE PIXEL TERAHERTZ CAMERA .....	53
<i>Ritesh Jain, Philipp Hillger, Janusz Grzyb, Ullrich R. Pfeiffer</i>	
FULLY AUTOMATED TERAHERTZ LAYER THICKNESS MEASUREMENT SYSTEM .....	55
<i>B. Globisch, L. Liebermeister, R. B. Kohlhaas, A. Deninger, L. Anklamm, R. Mästle</i>	
TERAHERTZ DETECTION OF FINGERPRINT SPOOFING .....	57
<i>Norbert Palka, Marcin Kowalski</i>	
TWO WAVELET-BASED ALGORITHMS FOR CHEMICAL RECOGNITION USING TRANSMISSION TERAHERTZ SPECTRAL IMAGING THROUGH TURBID MEDIA .....	59
<i>Mahmoud E. Khani, M. Hassan Arbab</i>	
TERAHERTZ WAVE EMISSION FROM LIQUID METAL .....	61
<i>Yuqi Cao, Yiwen E, Pingjie Huang, X.-C. Zhang</i>	
ENHANCEMENT OF TERAHERTZ SPECTRA BY MODEL-DRIVEN SPECTRAL SHAPING OF A MODE-LOCKED LASER DIODE IN A TERAHERTZ TIME-DOMAIN SPECTROSCOPY SYSTEM .....	63
<i>Kevin Kolpatzeck, Muhamed Dedic, Peter Krämer, Xuan Liu, Vladyslav Cherniak, Kai- Henning Tybussek, Marlene Zander, Lars Häring, Jan C. Balzer, Andreas Czyblik</i>	
EFFICIENT MULTI-CYCLE TERAHERTZ GENERATION BASED ON A MULTI-LINES SOURCE .....	65
<i>Wenlong Tian, Halil T. Olgun, Lu Wang, Giovanni Cirmi, Yi Hua, Damian N. Schimpf, Hüseyin Çankaya, Mikhail Pergament, Michael Hemmer, Nicholas Matlis, Franz X. Kärtner</i>	

GENERATION OF ULTRABROADBAND COHERENT INFRARED PULSES OF THE FREQUENCY RANGE OF 1-200 THZ USING MULTIPLATE-COMPRESSED DRIVING PULSES .....	67
<i>Eiichi Matsubara, Masaaki Ashida</i>	
PERFORMANCE OF A 1030 NM DRIVEN ERAS: INGAAS PHOTOCONDUCTIVE RECEIVER AT HIGH THZ AVERAGE POWER.....	69
<i>U. Nandi, T. Vogel, S. Mansourzadeh, M. Hoffmann, J. C. Norman, H. Lu, A. C. Gossard, C. J. Saraceno, S. Preu</i>	
QUANTIFYING NANOSCALE ELECTROMAGNETIC FIELDS IN MULTI-THZ NANOSCOPY.....	71
<i>Fabian Sandner, Fabian Mooshammer, Markus A. Huber, Markus Plankl, Martin Zizlsperger, Rupert Huber</i>	
MODELING THE TERAHERTZ PULSE INDUCED TRANSIENT BIAS IN THE STM JUNCTION .....	73
<i>Peter H. Nguyen, Vedran Jelic, Yang Luo, Jesus A. M. Calzada, Yu-Jui Ray Liu, Frank A. Hegmann</i>	
SUB-CYCLE THZ FIELD EMISSION OF ELECTRONS FROM A TUNGSTEN NANOTIP.....	75
<i>Dominique Matte, Nima Chamanara, Lauren Gingras, Laurent René De Cotret, Tristan Britt, Bradley J. Siwick, David G. Cooke</i>	
THE EVOLVING ROLE OF FOURIER TRANSFORM SPECTROSCOPY IN FAR-INFRARED SPACE ASTRONOMY .....	77
<i>David Naylor</i>	
THZ-STM OF ATOMICALLY PRECISE GRAPHENE NANORIBBONS.....	80
<i>Spencer E. Ammerman, Vedran Jelic, Yajing Wei, Nik J. Breslin, Mohamed Hassan, Nathan Everett, Qiang Sun, Carlo A. Pigendoli, Pascal Ruffieux, Roman Fasel, Tyler L. Cocker</i>	
ENERGY LEVELS AND THZ OPTICAL PROPERTIES IN GRAPHENE QUANTUM DOTS.....	82
<i>S. Massabeau, E. Riccardi, T. Apretna, M. Rosticher, C. Berger, W. De Heer, J. Tignon, S. Dhillon, N. Regnault, R. Ferreira, J. Mangeney</i>	
PHOTON-ASSISTED TUNNELING IN HBN ENCAPSULATED GRAPHENE QUANTUM DOT UNDER COHERENT THZ ILLUMINATION .....	83
<i>S. Messelot, E. Riccardi, S. Massabeau, M. Rosticher, K. Watanabe, T. Taniguchi, J. Tignon, S. Dhillon, R. Ferreira, S. Balibar, T. Kontos, J. Mangeney</i>	
FROM GRAPHENE OXIDE TO GRAPHENE: TUNING THZ PROPERTIES BY REDUCTION AND METAL INTERCALATION.....	85
<i>Erika Colin Ulloa, Kateryna Kushnir, Sanjay Karna, Teng Shi, Joshua Uzarski, Lyubov V. Titova</i>	
TERAHERTZ TIME-DOMAIN IMAGING OF “THE LAST SUPPER” .....	86
<i>Kaori Fukunaga, Iwao Hosako, Michela Palazzo, Lorenza Dall'Aglio, Fabio Aramini, Costanza Cucci, Marcello Picollo, Tomofumi Ikari, Irl N. Duling</i>	
TERAHERTZ FMCW MEASUREMENTS OF LEONARDO DA VINCI'S “THE LAST SUPPER” AND OTHER INVESTIGATIONS IN THE FIELD OF CULTURAL HERITAGE.....	88
<i>M. Bauer, A. Keil, C. Matheis, K. Fukunaga, F. Aramini, M. Palazzo, L. Dall'Aglio, F. Friederich</i>	

COMPLETELY PASSIVE ROOM-TEMPERATURE IMAGING OF HUMAN BODY RADIATION BELOW 1 THZ WITH FIELD-EFFECT TRANSISTORS .....	90
<i>D. Cibiraitė-Lukenskiene, K. Ikamas, T. Lisauskas, A. Ryslavets, V. Krozer, H. G. Roskos, A. Lisauskas</i>	
A STRETCHABLE WIDEBAND PHOTO-THERMOELECTRIC WRAP SCANNER SHEET FOR WEARABLE AND NONINVASIVE LIQUID QUALITY MONITORING .....	92
<i>R. Utaki, K. Li, Y. Kawano</i>	
DEPLOYMENT OF A FULLY INTEGRATED 360GHZ SCHOTTKY DIODE BASED RECEIVER AT THE MEXICAN LARGE MILLIMETRE TELESCOPE .....	94
<i>N. S. Daghestani, F. Cahill, A. Obeed, E. Gallagher, E. Colin-Beltran, D. Sanchez-Arguelles, Stan Kurtz, D. Hughes, G. A. Fuller, M. Dunstan, S. Parkes, B. N. Ellison</i>	
DISTANCE MEASUREMENT USING A SUBCARRIER FREQUENCY-MODULATED CONTINUOUS-WAVE RADAR BASED ON A RESONANT-TUNNELING-DIODE OSCILLATOR .....	95
<i>Adrian Dobroiu, Yusuke Shirakawa, Safumi Suzuki, Masahiro Asada, Hiroshi Ito</i>	
THZ-DRIVEN BUNCH COMPRESSION FOR VARYING ELECTRON BEAM ENERGY .....	97
<i>Emma Snively, Mohamed A. K. Othman, Michael Kozina, Benjamin Ofori-Okai, Stephen Weathersby, Suji Park, Xiaozhe Shen, Xijie Wang, Matthias Hoffmann, Li Renkai, Emilio Nanni</i>	
TERAHERTZ QUANTUM SENSING WITH VISIBLE LIGHT .....	99
<i>Mirco Kutas, Björn Haase, Patricia Bickert, Felix Riexinger, Daniel Molter, Georg Von Freymann</i>	
ELECTRO-OPTIC INTERFACE FOR ULTRASENSITIVE INTRA-CAVITY ELECTRIC FIELD SENSING .....	101
<i>Ileana-Cristina Benea-Chelmus, Yannick Salamin, Francesca Fabiana Settembrini, Yuriy Fedoryshyn, Wolfgang Heni, Delwin Elder, Larry Dalton, Juerg Leuthold, Jérôme Faist</i>	
COMPARISON OF PHOTOCONDUCTIVE ANTENNA, TERA-FET AND SCHOTTKY BARRIER DIODE AS DETECTORS FOR CONTINUOUS-WAVE TERAHERTZ .....	102
<i>S. Nellen, G. Schwanke, A. Rämmer, L. Liebermeister, R. Kohlhaas, M. Deumer, E. Dischke, S. Shevchenko, W. Heinrich, V. Krozer, M. Schell, B. Globisch</i>	
EFFICIENT TERAHERTZ WAVE GENERATION OF FE/PT DIABOLO-SHAPED SPINTRONIC ANTENNAS FABRICATED ON MGO SUBSTRATE .....	104
<i>Miezel Talara, Dmitry Bulgarevich, Valynn Katrine Mag-Usara, Chiyaka Tachioka, Joselito Muldera, Hideaki Kitahara, Makoto Watanabe, Masahiko Tani</i>	
TWO-PORT SLOT BOWTIE ANTENNA WITH MONOLITHICALLY INTEGRATED PHOTODIODES FOR THZ POWER COMBINING .....	106
<i>S. Dülme, V. Cherniak, K. Kaya, P. Lu, J. Tebart, M. Grzeslo, J. Fernández-Estévez, T. Haddad, I. Appiagyei, A. Stöhr</i>	
NOVEL INTENSE SINGLE- AND MULTICYCLE THZ SOURCES.....	107
<i>József András Fülöp, Gyula Polónyi, Krizsán Gergő, Nelson M. Mbithi, Priyo Syamsul Nugraha, Gábor Almási, László Pálfalvi, Zoltán Tibai, György Tóth, János Hebling, Vinzenz Stummer, Tobias Flöry, Edgar Kaksis, Audrius Pugzlys, Andrius Baltuska</i>	
HIGH-AVERAGE POWER THZ GENERATION IN THE TILTED PULSE FRONT GEOMETRY IN LITHIUM NIOBATE .....	109
<i>Tim Vogel, Frank Meyer, Shahwar Ahmed, Clara J. Saraceno</i>	

1.4 MJ HIGH ENERGY THZ RADIATION FROM LITHIUM NIOBATES .....	111
<i>Xiaojun Wu, Baolong Zhang, Jinglong Ma, Yutong Li</i>	
HANDHELD MILLIMETER WAVE IMAGING SYSTEM BASED ON A TWO-DIMENSIONAL MULTISTATIC SPARSE ARRAY .....	113
<i>R. Hussung, A. Keil, F. Friederich</i>	
ROAD SURFACE CHARACTERIZATION USING A RADIOMETER AT 100 GHZ .....	115
<i>O. Auriacombe, V. Vassilev, A. Uz Zaman</i>	
POLARIZATION-SENSITIVE FAST THZ-TDS SCANNER IN A PORTABLE FORM-FACTOR .....	117
<i>Zachery B. Harris, Omar B. Osman, M. Hassan Arbab</i>	
A 63-PIXEL TERAHERTZ FOCAL-PLANE ARRAY FOR TERAHERTZ TIME-DOMAIN SPECTROSCOPY AND IMAGING .....	119
<i>Xurong Li, Mona Jarrahi</i>	
A HIGHLY-SENSITIVE AND HIGHLY-INTEGRATED FLEXIBLE BROADBAND IMAGER WITH 3D PRINTED $\pi$ -SHAPED PHOTO-THERMOELECTRIC PIXEL STRUCTURES .....	121
<i>Kou Li, Ryogo Utaki, Meiling Sun, Y. Kawano</i>	
NANOCAVITIES FOR TERAHERTZ LIGHT .....	123
<i>Luca Razzari</i>	
ULTRAHIGH-Q TERAHERTZ DISC MICRORESONATOR WITH SUB-WAVELENGTH THICKNESS .....	125
<i>Dominik Walter Vogt, Angus Harvey Jones, Thomas Alan Haase, Rainer Leonhardt</i>	
COLOSSAL TERAHERTZ FIELD ENHANCEMENT IN SLANT NANO-ANTENNAS .....	126
<i>Hyeong Seok Yun, Dai-Sik Kim</i>	
TERAHERTZ ULTRAHIGH-Q METASURFACE ENABLED BY OUT-OF-PLANE ASYMMETRY .....	127
<i>Md. Saiful Islam, Brian. W. H-Ng, Derek Abbott</i>	
IDENTIFYING MATERIAL-SPECIFIC DETRIMENTAL CHARGE-TRANSPORT PHONONS FOR THE OPTIMIZATION OF ORGANIC SEMICONDUCTORS .....	129
<i>P. A. Banks, M. T. Ruggiero</i>	
INTERPRETATION OF THZ INTENSITIES OF MOLECULAR CRYSTALS: THE ROLE OF MIXING BETWEEN INTERMOLECULAR AND INTRAMOLECULAR VIBRATIONS .....	131
<i>Feng Zhang, Hong-Wei Wang, Keisuke Tominaga, Michitoshi Hayashi, Masahiko Tani</i>	
EXCITED STATE DYNAMICS OF CONDUCTING POLYMERS STUDIED BY TIME-RESOLVED OPTICAL AND TERAHERTZ SPECTROSCOPY .....	133
<i>F. Dutin, J. Degert, M. Tondusson, M. Bousquet, E. Cloutet, G. Hadziioannou, E. Freysz</i>	
INVESTIGATION OF 5-FLUOROURACIL COCRYSTALS BY LOW-FREQUENCY VIBRATIONAL SPECTROSCOPY AND SOLID-STATE DENSITY FUNCTIONAL THEORY .....	134
<i>Margaret P. Davis, Timothy M. Korter</i>	
THERMOELASTIC RESPONSE OF CRYSTALLINE ORGANIC SEMICONDUCTORS MEASURED WITH LOW-FREQUENCY VIBRATIONAL SPECTROSCOPY .....	136
<i>P. A. Banks, M. T. Ruggiero</i>	



MATERIAL CLASSIFICATION BASED ON THZ REFLECTION MODE MEASUREMENTS ENABLED BY AN ARTIFICIAL NEURAL NETWORK .....	138
<i>R. Liu, T. Kubiczek, P. Lehmann, D. Damyanov, J. C. Balzer</i>	
INJECTION-SEEDED TERAHERTZ PARAMETRIC GENERATOR WITH RAPID WAVELENGTH TUNABILITY USING DIGITAL MICROMIRROR DEVICE.....	140
<i>Kosuke Murate, Sota Mine, Kodo Kawase</i>	
CLASSIFICATION FOR GLUCOSE AND LACTOSE TERAHERTZ SPECTRA BASED ON SVM AND DNN METHODS .....	142
<i>Kaidi Li, Xuequan Chen, Emma Pickwell-Macpherson</i>	
TOWARDS NEURAL NETWORK CLASSIFICATION OF TERAHERTZ MEASUREMENTS FOR DETERMINING THE NUMBER OF COATING LAYERS.....	143
<i>I. Busboom, N. Rohde, S. Christmann, V. K. S. Feige, H. Haehnel, B. Tibken</i>	
TERAHERTZ METAMATERIAL INTELLIGENT IDENTIFICATION BY PRIVATE PRESERVING DEEP LEARNING .....	145
<i>Feifei Liu, Weihao Zhang, Yu Sun, Jianwei Liu, Xiaojun Wu</i>	
LIGHT-INDUCED CONFORMATIONAL CHANGES OF TWO DIFFERENT CHANNELRHODOPSIN MUTANTS PROBED BY DIFFERENCE MID-INFRARED MICROSPECTROSCOPY WITH SYNCHROTRON RADIATION .....	147
<i>Raffaella Polito, Valeria Giliberti, Maria Eleonora Temperini, Eglof Ritter, Matthias Broser, Peter Hegemann, Ljiljana Puskar, Ulrich Schade, Leonetta Baldassarre, Michele Ortolani</i>	
STABILIZATION OF TERAHERTZ VIBRATIONAL MODES IN ILLUMINATED ORANGE CAROTENOID PROTEIN CRYSTALS .....	149
<i>Jeffrey McKinney, Akansha Sharma, Yanting Deng, Deepu George, Sigal Lechno-Yossef, Cheryl Kerfeld, Andrea Markelz</i>	
BIO-MOLECULAR SEIRAS SENSOR WITH PASSIVE MOLECULE TRAPPING FUNCTIONALITY .....	151
<i>Xianglong Miao, Lingyue Yan, Yun Wu, Peter Q. Liu</i>	
HIGH-SPEED TERAHERTZ PIN PHOTODIODE WITH WR-3 RECTANGULAR WAVEGUIDE OUTPUT .....	153
<i>Muhsin Ali, Luis Enrique García-Muñoz, Simon Nellen, Björn Globisch, Guillermo Carpintero</i>	
CARRIER TRANSIT TIME REDUCTION FOR BROADBAND PHOTOCONDUCTIVE TERAHERTZ DETECTION AT TELECOMMUNICATION WAVELENGTHS.....	155
<i>Ping-Keng Lu, Mona Jarrahi</i>	
ROOM TEMPERATURE HETERODYNE DETECTION UP TO 70GHZ WITH ANTENNA- COUPLED QUANTUM-WELL PHOTODETECTORS OPERATING AT 10 $\mu$ M .....	157
<i>Q. Y. Lin, M. Hakl, J-F. Lampin, S. Pirotta, R. Colombelli, W. J. Wan, J. C. Cao, H. Li, E. Peytavit, S. Barbieri</i>	
FEATURES OF PHOTOTHERMAL IONIZATION IN PHOTOCONDUCTING SPECTRA OF MID-INFRARED SILICON DETECTORS DOPED BY DEEP SELENIUM DOUBLE DONORS .....	159
<i>Andreas Pohl, Sergey G. Pavlov, Valentina B. Shuman, Leonid M. Portsel, Anatoly N. Lodygin, Yuri A. Astrov, Heinz-Wilhelm Hübers</i>	
GAPLESS SENSITIVE DETECTION OF ULTRABROADBAND INFRARED PULSES USING SINGLE CRYSTAL OF DIAMOND .....	161
<i>Eiichi Matsubara, Masaya Nagai, Masaaki Ashida</i>	

UPGRADE OF MID-INFRARED FREE ELECTRON LASER AT KYOTO UNIVERSITY BY LONG MACRO-PULSE PHOTOCATHODE OPERATION OF THE EXISTING RF GUN.....	163
<i>Heishun Zen, Hideaki Ohgaki, Ryoichi Hajima</i>	
ELECTRON BUNCH LENGTH SENSORS BASED ON THIN-FILM LINBO <sub>3</sub> MODULATORS .....	164
<i>John Rollinson, Mona Hella, Seyfollah Toroghi, Payam Rabiei, Ingrid Wilke</i>	
IMPROVEMENT OF THE POWER HANDLING CAPABILITY OF THE UPGRADED MULTI- FREQUENCY ECRH SYSTEM AT ASDEX UPGRADE.....	166
<i>D. Wagner, J. Stober, M. Kircher, F. Leuterer, F. Monaco, M. Münich, M. Schubert, H. Zohm, G. Gantenbein, J. Jelonnek, M. Thumm, A. Meier, T. Scherer, D. Strauss, W. Kasperek, C. Lechte, B. Plaum, A. Zach, A. G. Litvak, G. G. Denisov, A. Chirkov, V. Malygin, L. G. Popov, V. O. Nichiporenko, V. E. Myasnikov, E. M. Tai, E. A. Solyanova</i>	
DEVELOPMENT OF PASSIVE NEAR-FIELD SPECTROSCOPY FOR THERMAL EVANESCENT WAVE.....	168
<i>Ryoko Sakuma, Kuan-Ting Lin, Sunmi Kim, Fuminobu Kimura, Yusuke Kajihara</i>	
NONLOCAL OPTICAL PUMP-THZ PROBE IN THE NEAR FIELD.....	170
<i>Angela C. Pizzuto, Wonsik Choi, Xiuling Li, William L. Wilson, Daniel M. Mittleman</i>	
SUPER-RESOLUTION TERAHERTZ MICROSCOPY WITH DETERMINISTIC ARTIFICIAL FLUOROPHORES.....	172
<i>Hichem Guerbouka, Yang Cao, Kathirvel Nallannan, Maksim Skorobogatiy</i>	
RECENT DEVELOPMENTS OF MULTI-EXTREME THZ ESR .....	174
<i>Hitoshi Ohta, Susumu Okubo, Eiji Ohmichi, Takahiro Sakurai, Hideyuki Takahashi, Shigeo Hara</i>	
ROOM TEMPERATURE AMPLIFICATION OF TERAHERTZ RADIATION BY GRATING- GATE MONOLAYER GRAPHENE-CHANNEL TRANSISTOR STRUCTURES.....	176
<i>Taiichi Otsuji</i>	
ENVIRONMENTAL GRAPHENE CONDUCTIVITY SENSING USING TERAHERTZ TIME- DOMAIN REFLECTION SPECTROSCOPY .....	178
<i>Hungyen Lin, Oliver J. Burton, Sebastian Engelbrecht, Kai-Henning Tybussek, Bernd M. Fischer, Stephan Hofmann</i>	
HIGHLY TRANSPARENT GRAPHENE ELECTRODES FOR CW THZ APPLICATIONS.....	180
<i>Alaa Jabbar Jumaah, Shihab Al-Daffaie, Thomas Kusserow, Idelfonso Tafur Monroy</i>	
KINETIC IONIC PERMEATION AND INTERFACIAL DOPING OF SUPPORTED GRAPHENE MEASURED WITH TERAHERTZ PHOTOCONDUCTIVITY MEASUREMENTS.....	182
<i>Xiaoyu Jia, Klaas-Jan Tielrooij, Mischa Bonn, Hai I. Wang</i>	
DISTILLING A CROWDED SPECTRUM: THE OVERLAP OF TERAHERTZ PROTEIN COLLECTIVE VIBRATIONS WITH FUNCTIONAL MOTIONS.....	183
<i>Tod Romo, Alan Grossfield, Andrea Markelz</i>	
TERAHERTZ TIME DOMAIN SPECTROSCOPY AND DENSITY FUNCTIONAL THEORY CALCULATIONS OF PEPTIDES .....	184
<i>Jens Neu, Charles A. Schmuttermaier</i>	
STABILITY OF PROTEIN-SUGAR LYOPHILIZATES INVESTIGATED WITH TERAHERTZ SPECTROSCOPY.....	185
<i>J. Kölbl, M. L. Anuschk, I. Seifert, W. Frieß, J. A. Zeitler</i>	

BIOMOLECULAR FLEXIBILITY CHARACTERIZATION USING SOLUTION PHASE THZ PROTEIN DYNAMICAL TRANSITION .....	186
<i>Akansha Sharma, Deepu George, Andrea Markelz</i>	
AN ULTRASENSITIVE MICROFLUIDIC TERAHERTZ META-BIOSENSOR IN QUADRUPOLE RESONANCE MODE FOR DETECTION OF CARDIAC MARKER TROPONIN I .....	187
<i>Y. S. Lin, S. T. Huang, S. F. Hsu, K. Y. Tang, T. J. Yen, D. J. Yao</i>	
ALL-SILICON TERAHERTZ COMPONENTS TOWARDS EFFICIENT INTEGRATED SYSTEMS .....	188
<i>Weijie Gao, Christophe Fumeaux, Withawat Withayachumnankul</i>	
BROADBAND ANTI-REFLECTION COATING FOR THZ WAVES DEVELOPED WITH SI NANOPARTICLE-POLYMER COMPOSITE MATERIAL .....	190
<i>Junshi Soeda, Yoichi Kawada, Hiroshi Satozono, Hironori Takahashi, Masayuki Chokai, Yoshinori Ikeda</i>	
CMOS CAMERA-TYPE THZ COMPACT ANTENNA TEST RANGE FOR FAR-FIELD RADIATION PATTERN ANALYSIS .....	191
<i>Robin Zatta, Vishal S. Jagtap, Janusz Grzyb, Ullrich R. Pfeiffer</i>	
INTEGRATED SILICON PLATFORM FOR CO-PLANAR DESIGN OF VERTICALLY STACKED 2.06 THZ MIXER MODULE .....	193
<i>Christine P. Chen, Cecile Jung-Kubiak, Darren Hayton, Jose Siles, Robert Lin, Alain Maestrini, Joseph Lee, Alex Peralta, Imran Mehdi</i>	
PERFECTLY-ABSORBING PHOTOCONDUCTIVE METASURFACES FOR THZ APPLICATIONS.....	195
<i>O. Mitrofanov, L. L. Hale, P. P. Vabischevich, T. Siday, C. T. Harris, T. S. Luk, S. J. Addamane, J. L. Reno, I. Brener</i>	
THZ TIME-DOMAIN CHARACTERIZATION OF AMPLIFYING QUANTUM-CASCADE METASURFACE.....	197
<i>Yue Shen, Anthony D. Kim, Christopher A. Curwen, John L. Reno, Benjamin S. Williams</i>	
ULTRAFAST ELECTRONIC READOUT FROM A PLASMONIC BOLOMETER: HOT ELECTRON DYNAMICS AND POLARIZATION IMAGING APPLICATIONS .....	198
<i>G. Xu, M. Kilinc, B. Chen, A. Cheney, T. Thomay</i>	
A TERAHERTZ AND INFRARED SENSITIVE PHOTOMULTIPLIER TUBE WITH A FIELDMIXING PHOTOCATHODE.....	200
<i>Simon L. Lange, Narwan Kabir Noori, Naoya Kawai, Peter U. Jepsen</i>	
GIANT OPTICAL NONLINEARITY INTERFERENCES IN TERAHERTZ QUANTUM STRUCTURES .....	201
<i>S. Houver, A. Lebreton, T. A. S. Pereira, G. Xu, R. Colombelli, I. Kundu, L. H. Li, E. H. Linfield, A. G. Davies, J. Mangeney, J. Tignon, R. Ferreira, S. S. Dhillon</i>	
PHOTO-CARRIER DOPING EFFECT ON HIGH-ORDER HARMONIC GENERATION IN MONOLAYER WSE <sub>2</sub> .....	202
<i>Kohei Nagai, Kento Uchida, Satoshi Kusaba, Takahiko Endo, Yasumitsu Miyata, Koichiro Tanaka</i>	
THZ NONLINEAR DIELECTRICS.....	204
<i>Kareem J. Garriga Francis, Mervin Lim Pac Chong, E Yiwen, X.-C. Zhang</i>	

MILLIWATT-LEVEL MULTI-MHZ THZ WAVE GENERATION IN THE ORGANIC CRYSTAL HMQ-TMS WITH A COMPRESSED FIBER LASER .....	206
<i>Tobias Olaf Buchmann, Edmund J. R. Kelleher, Binbin Zhou, Mojca Jazbinsek, Jin-Hong Seok, O-Pil Kwon, Fabian Rotermund, Peter Uhd Jepsen</i>	
TERAHERTZ TIME-DOMAIN SPECTROSCOPY SYSTEM USING RHODIUM DOPED INGAAS ANTENNAS: 637 $\mu$ W PEAK POWER AND 110 DB DYNAMIC RANGE .....	208
<i>Robert B. Kohlhaas, Steffen Breuer, Simon Nellen, Lars Liebermeister, Martin Schell, Mykhaylo P. Semtsiv, W. Ted Masselink, Björn Globisch</i>	
ULTRA-HIGH PERFORMANCE MILLIMETER-WAVE OSCILLATOR AND METROLOGY .....	210
<i>M. Yeo, T. Tetsumoto, T. Nagatsuma, A. Rolland</i>	
HIGH DYNAMIC RANGE AND BROADBAND PHOTOCONDUCTIVE TERAHERTZ DETECTOR DRIVEN BY A YTTERBIUM-DOPED FEMTOSECOND FIBER LASER .....	212
<i>Deniz Turan, Nezh Tolga Yardimci, Mona Jarrahi</i>	
MHZ-REPETITION RATE THZ SOURCES WITH HIGH AVERAGE POWER.....	214
<i>F. Meyer, T. Vogel, S. Mansourzadeh, N. Hekmat, M. Hoffmann, C. J. Saraceno</i>	
WAVELENGTH DEPENDENCE OF HIGH-ENERGY AIR-PLASMA THZ GENERATION UNDER OPTIMAL CONDITIONS .....	216
<i>B. B. Zhou, Q. Shen, P. U. Jepsen</i>	
INTENSE SINGLE-CYCLE TERAHERTZ GENERATION DRIVEN BY ULTRASHORT HIGH-POWER LASER PULSES.....	217
<i>Yushan Zeng, Chuliang Zhou, Liwei Song, Xiaoming Lu, Zhongpeng Li, Yingying Ding, Yafeng Bai, Yi Xu, Yuxin Leng, Ye Tian, Jiansheng Liu, Ruxin Li, Zhizhan Xu</i>	
DEVELOPMENT OF A CRYOGENIC FAR-INFRARED GRATING SPECTROMETER FOR A POST-DISPERSED FOURIER TRANSFORM SPECTROMETER.....	219
<i>Alicia Anderson, David Naylor, Anthony Huber, Brad Gom, Trevor Fulton, Sudhakar Gunuganti, Willem Jellema, Ian Veenendaal, Peter Ade</i>	
APPROACHING SUBWAVELENGTH TERAHERTZ IMAGING USING PHOTO-INDUCED CODED APERTURES ON MESA-ARRAY STRUCTURES .....	221
<i>Yijing Deng, Yu Shi, Lei Liu</i>	
DESIGN OF LENS BASED FOCAL PLANE ARRAYS FOR WIDE FIELD OF VIEW IMAGING USING COHERENT FOURIER OPTICS .....	223
<i>S. O. Dabironezare, M. Zhang, G. Carluccio, A. Freni, A. Neto, N. Llombart</i>	
A FAST AND HOMOGENEOUS ILLUMINATION APPLIED TO FULL-FIELD TERAHERTZ IMAGING .....	224
<i>J-B. Perraud, A. Chopard, J-P. Guillet, P. Gellie, F. Fauquet, P. Mounaix</i>	
SPATIAL MEASUREMENT OF TERAHERTZ FIELDS BY ENCODING PROBE BEAM .....	226
<i>Jiapeng Zhao, E Yiwen, Kaia Williams, Xi-Cheng Zhang, Robert W. Boyd</i>	
METASURFACE PATHWAYS FOR SURFACE GUIDING OF CONFINED TERAHERTZ SPOOF SURFACE PLASMON POLARITONS ON ROUTES WITH SUBWAVELENGTH WIDTH.....	228
<i>S. Becker, T. Fip, M. Rahm</i>	
TUNABLE FULLY ABSORBING METASURFACES FOR EFFICIENT THZ DETECTION.....	230
<i>Lucy L. Hale, Polina P. Vabischevich, Tom Siday, Charles Thomas Harris, John L. Reno, Igal Brener, Oleg Mitrofanov</i>	

BISMUTH NANOFILMS AS EFFICIENT BROADBAND THZ ANTIREFLECTION COATING.....	232
<i>Alexander Stroh, Wentao Zhang, Savio Fabretti, Hassan A Hafez, Laurenz Kremeyer, Jungwoo Koo, Frank Meyer Zu Heringdorf, Günter Reiss, Michael Horn-Von Hoegen, Dmitry Turchinovich</i>	
TAMING EXTRAORDINARY THZ TRANSMISSION THROUGH SUB- $\lambda$ SLOT ARRAYS VIA ARRAY TRUNCATION, SLOT ROTATION, POLARIZATION AND ANGLE OF INCIDENCE .....	234
<i>Ajla Nekovic, Miguel Camacho, Suzanna Freer, Pavel Penchev, Rafael R. Boix, Stefan Dimov, Miguel Navarro-Cía</i>	
ANISOTROPIC MAGNETODIELECTRIC EFFECT IN ISOTROPIC EUTIO <sub>3</sub> CERAMICS .....	236
<i>Christelle Kadlec, Dalibor Repcek, Filip Kadlec, Maxim Savinov, Martin Kachlík, Jan Drahokoupil, Petr Proschek, Jan Prokleška, Karel Máca, Stanislav Kamba</i>	
HIGH CHARGE CARRIER MOBILITIES AND LONG DIFFUSION LENGTHS IN TIN BASED METAL HALIDE PEROVSKITE .....	237
<i>Stephanie O. Adeyemo, Srabani Kar, Shashini Silva, Imalka Jayawardena, Ravi Silva, Hannah J. Joyce</i>	
LONGITUDINAL OPTICAL PHONON RESONANT THZ – MID INFRARED RADIATION FROM SURFACE METAL-SEMICONDUCTOR MICROSTRUCTURES .....	238
<i>K. Hayashi, D. Tanaka, K. Ebisawa, N. Aihara, T. Yonemoto, H. L. L. Aye, B. Lin, B. Ma, K. Morita, Y. Ishitani</i>	
THZ BASED ULTRAHIGH TEMPERATURE MEASUREMENT OF SILICON .....	240
<i>Daena Madhi, Asger Kjærgård Pedersen, Daniil Mirosnikov, Dirch Hjorth Petersen, Peter Uhd Jepsen</i>	
LINEAR DICHROISM IN HIGH TEMPERATURE SUPERCONDUCTORS IN THZ RANGE .....	241
<i>D. K. George, J. Seo, H. Zhang, C. Zhang, T. Kirzhner, G. Koren, J. Y. T. Wei, A. Markelz, J. Cerne</i>	
TRACING ULTRAFAST PHENOMENA WITH INFRARED ELECTRIC FIELDS.....	243
<i>Alfred Leitenstorfer</i>	
ON-CHIP TERAHERTZ SPECTROSCOPY OF MAGNETOPLASMONS IN A TWO-DIMENSIONAL ELECTRON GAS.....	245
<i>R. S. Parker-Jervis, S. J. Park, S. Zonetti, O. Sydoruk, J. Wu, C. D. Wood, L. H. Li, A. G. Davies, E. H. Linfield, J. E. Cunningham</i>	
SYNCHROTRON-LIKE THZ EMITTERS BASED ON CORRUGATED GRAPHENE.....	246
<i>R. Kerjouan, E. Riccardi, P. Huang, M. Rosticher, A. Pierret, J. Tignon, S. Dhillon, M.-B. Martin, B. Dlubak, P. Seneor, D. Dolfi, K. Watanabe, T. Taniguchi, R. Ferreira, J. Mangeney</i>	
ELECTRICALLY TUNABLE GRAPHENE-ON-POLYIMIDE TERAHERTZ MODULATORS.....	248
<i>Alessandra Di Gaspare, Eva A. A. Pogna, Luca Salemi, Osman Balci, Alisson Cadore, Sachin M. Shinde, Cinzia Di Franco, Andrea C. Ferrari, Gaetano Scamarcio, Miriam S. Vitiello</i>	
GENOMIC SIGNATURE OF MEMBRANE PERMEATION INDUCED BY INTENSE THZ PULSES .....	249
<i>Cameron M. Hough, David N. Purschke, Chenxi Huang, Lyubov V. Titova, Olga Kovalchuk, Brad J. Warkentin, Frank A. Hegmann</i>	
THE EFFECTS OF THZ IRRADIATION ON CELLULAR ACTIN FILAMENT .....	251
<i>Shota Yamazaki, Masahiko Harata, Masaaki Tsubouchi, Yuichi Ogawa, Goro Isoyama, Chiko Otani, Hiromichi Hoshina</i>	

EFFECT OF MILLIMETER WAVES ON GENOME ARCHITECTURE AND THE TRANSCRIPTOME OF PRIMARY HUMAN FIBROBLASTS .....	253
<i>Nicholas B. Lawler, Sergii Romanenko, Cameron W. Evans, Nutan Chaudhari, Nicole M. Smith, Killugudi Swaminatha Iyer, Vincent P. Wallace</i>	
TERAHERTZ RADIATION STIMULATES NEURITE GROWTH IN PC12 DERIVED NEURONS DURING DEVELOPMENT PHASE: PRELIMINARY STUDY .....	255
<i>Sergii Romanenko, Dominique Appadoo, Nicholas Lawler, Stuart I. Hodgetts, Alan R. Harvey, Vincent P. Wallace</i>	
CAUGHT IN THE ACT: EXCITED-STATE PROTON TRANSFER TO THE SOLVENT FOLLOWED IN REAL TIME BY NON-LINEAR THZ SPECTROSCOPY .....	257
<i>C. Hoberg, T. Ockelmann, J. Shee, P. Balzerowski, D. Dasmahanta, F. Novelli, M. Head-Gordon, M. Havenith</i>	
PLANE PHOTOACOUSTIC WAVE GENERATION IN LIQUID WATER BY THZ-FEL .....	259
<i>Masaaki Tsubouchi, Hiromichi Hoshina, Masaya Nagai, Goro Isoyama</i>	
THZ SPECTROSCOPY REVEALS THE DYNAMICS OF BOUND WATER IN POLYMER FILMS .....	261
<i>Hiromichi Hoshina, Takuro Kanemura, Michael T. Ruggiero</i>	
MOLECULAR ORGANIZATION OF WATER AT THE HYDROPHILIC SILICA/LIQUID INTERFACE PROBED BY SUM FREQUENCY GENERATION SPECTROSCOPY .....	263
<i>Thomas T. Bui, Kyle Banecker, Luis Velarde</i>	
S-SNOM IMAGING OF A THZ PHOTONIC MODE.....	264
<i>T. Hannotte, L. Thomas, B. Walter, M. Lavancier, S. Eliet, M. Faucher, J.-F. Lampin, R. Peretti</i>	
NEAR-FIELD STUDY OF THE STRONG COUPLING BETWEEN INTERSUBBAND TRANSITIONS IN QUANTUM WELLS AND SINGLE PATCH ANTENNA RESONATORS IN THE MID-INFRARED .....	266
<i>Mario Malerba, Raymond Gillibert, Valeria Giliberti, Lianhe Li, Giles A. Davies, Edmund H. Linfield, Davide Spirito, Leonetta Baldassarre, Raffaele Colombelli, Michele Ortolani</i>	
TERAHERTZ NANO-SPECTROSCOPY WITH RESONANT SCATTERING PROBES .....	267
<i>Tom Siday, Lucy L. Hale, Rodolfo I. Hermans, Oleg Mitrofanov</i>	
A NOVEL SCATTERING-TYPE SNOM-TIP FEATURING A MICRO-INTEGRATED BIAS- FREE OPTICALLY DRIVEN TERAHERTZ PULSE EMITTER.....	269
<i>M. Nagel, S. Sawallich, A. Michalski, S. Schäffer, A. Wigger, P. H. Bolivar</i>	
DYNAMIC THZ SIGNATURES OF CHARGE-LATTICE CORRELATIONS .....	271
<i>David G. Cooke, Yang Lan, Benjamin J. Dringoli, David A. Valverde-Chávez, Carlito S. Ponseca, Mark Sutton, Yihui He, Mercouri G. Kanatzidis</i>	
2D MXENES: TERAHERTZ PROPERTIES AND APPLICATIONS .....	273
<i>Lyubov V. Titova, Guangjiang Li, Varun Natu, Shuohan Huang, Teng Shi, Naaman Amer, Hassan A. Hafez, Frank A. Hegmann, Dmitry Turchinovich, Vadym Mochalin, Michel W. Barsoum</i>	
A NOVEL THZ ELECTROMAGNETIC INTERFERENCE SHIELDING MATERIAL: 2D TI <sub>3</sub> C <sub>2</sub> T <sub>y</sub> MXENE .....	275
<i>Guangjiang Li, Naaman Amer, Hassan A. Hafez, Shuohan Huang, Dmitry Turchinovich, Vadym N. Mochalin, Frank A. Hegmann, Lyubov V. Titova</i>	

DETERMINATION OF THE TERAHERTZ DIELECTRIC FUNCTION OF THE TOPOLOGICAL INSULATOR $\text{Bi}_2\text{Se}_3$ .....	276
<i>Pascal Strathkötter, Alexander Stroh, Hassan A Hafez, Wentao Zhang, Sahng-Kyoon Jerng, Seung-Hyun Chun, Dmitry Turchinovich</i>	
EXPERIMENTAL EVIDENCE OF THZ-LSPR IN MICROSTRUCTURES PATTERNED $\text{Bi}_2\text{Se}_3$ TOPOLOGICAL INSULATOR THIN FILMS .....	278
<i>H. Sugimoto, H. Tabata</i>	
HIGH-SPEED, LOW-NOISE THERMOELECTRIC GRAPHENE DETECTORS AT TERAHERTZ FREQUENCIES .....	280
<i>Leonardo Viti, Alisson R. Cadore, David G. Purdie, Jakob E. Muench, Xinxin Yang, Kenji Watanabe, Takashi Taniguchi, Andrei Vorobiev, Jan Stake, Antonio Lombardo, Andrea C. Ferrari, Miriam S. Vitiello</i>	
A CONNECTED ARRAY OF COHERENT PHOTOCONDUCTIVE PULSED SOURCES TO GENERATE MW AVERAGE POWER IN A 5 THZ BANDWIDTH.....	281
<i>A. Pelekanidis, P. M. Sberna, D. Fan, J. Bueno, N. Llombart, A. Neto</i>	
THZ SUPERRADIANT EMISSION FROM 1550-NM PULSE-PUMPED QUANTUM-DOT ARRAYS.....	282
<i>W-D. Zhang, E. R. Brown, R. P. Mirin, D. Saeedkia</i>	
SCANNING POINT TERAHERTZ SOURCE FOR BIOSENSING.....	283
<i>Kazunori Serita, Koske Okada, Masayoshi Tonouchi</i>	
TOTAL INTERNAL REFLECTION GEOMETRY FOR NEAR-FIELD IMAGING .....	285
<i>Lauren E. Barr, Peter Karlsen, Samuel H. Hornett, Ian R. Hooper, Christopher R. Lawrence, Euan Hendry</i>	
THZ TRANSMISSION THROUGH SUBMILLIMETER APERTURES.....	286
<i>Tim Lafave, Alan W. M. Lee, Tsung-Yu Kao, Andrea Markelz</i>	
THZ BEAM STEERING WITH INP-BASED LEAKY-WAVE ANTENNA.....	288
<i>Peng Lu, Thomas Haddad, Jonas Tebart, Benedikt Sievert, Andreas Rennings, Andreas Stöhr</i>	
TERAHERTZ DIFFERENTIATOR USING A PIEZOELECTRIC MICROMACHINED DEVICE .....	290
<i>F. Amirkhan, M. Gratuze, X. Ropagnol, T. Ozaki, F. Nabki, F. Blanchard</i>	
OPTICAL PERFORMANCE OF LIQUID NITROGEN COOLED TRANSISTOR-BASED THZ DETECTORS.....	291
<i>Kestutis Ikamas, Arnoldas Solovjovas, Dovile Cibiraite-Lukenskiene, Viktor Krozer, Alvydas Lisauskas, Hartmut G. Roskos</i>	
DIRECT OBSERVATION OF THZ BOUND STATES IN THE CONTINUUM.....	292
<i>Niels Van Hoof, Stan Ter Huurne, Jaime Gomez-Rivas</i>	
STRONG COUPLING OF TWO PHOTONS WITH A METAMATERIAL PLASMON IN A TERAHERTZ CAVITY .....	294
<i>Fanqi Meng, Mark D. Thomson, Bernhard Klug, Hartmut G. Roskos</i>	
STRAIN MAPPING WITH THZ METAMATERIAL COMPOSITES .....	295
<i>Omar Khatib, Talmage Tyler, Willie J. Padilla, Nan M. Jokerst, Henry O. Everitt</i>	
COMPUTATIONAL DESIGN OF THZ SPECTRAL SPLITTERS .....	296
<i>Sourangsu Banerji, Yu Shi, Udayan Ghosh, Jacqueline Cooke, Yong Lin Kong, Lei Liu, Berardi Sensale-Rodriguez</i>	

INTEGRATION OF RADAR CROSS SECTION REDUCING METASURFACES INTO MESOSCOPIC MICROMIRROR ARRAYS FOR TERAHERTZ SPATIAL LIGHT MODULATION .....	297
<i>J. Kappa, M. Weickert, D. Sokoluk, S. Klingel, E. Oesterschulze, M. Rahm</i>	
COMPARISON ANALYSIS OF SMALL AND LARGE BANDWIDTH INDOOR SAR MULTI-OBJECT IMAGING AT LOW TERAHERTZ SPECTRUM .....	299
<i>Aman Batra, Michael Wiemeler, Diana Goehringer, Thomas Kaiser</i>	
GRID-MAP IMAGE GENERATION USING 79GHZ RADAR SYSTEM FOR AUTOMATED DRIVING APPLICATION .....	301
<i>Jongseok Kim, Hyunwoong Cho, Sungdo Choi, Woosuk Kim, Seungtae Khang, Minsung Eo</i>	
UNAMBIGUOUS DETECTION OF MULTIPLE OBJECTS USING LEAKY-WAVE TERAHERTZ RADAR BASED ON STEPWISE SIGNAL PROCESSING .....	303
<i>Yuki Ito, Yasuaki Monnai</i>	
PHOTONICS-BASED FMCW RADAR LOCALIZATION USING DIRECT LASER MODULATION AND LEAKY-WAVE ANTENNA BEAM SCANNING.....	304
<i>Jonas Tebart, Matthias Steeg, Andreas Stöhr</i>	
SIMPLIFIED FMCW RADARS IMPLEMENTATION FOR GUIDED TERAHERTZ REFLECTOMETRY SENSING .....	306
<i>A. Chopard, M. Pan, F. Fauquet, J.-P. Guillet, P. Mounaix</i>	
ROOM TEMPERATURE TERAHERTZ NONLINEAR QUANTUM CASCADE LASERS AND THEIR APPLICATIONS .....	307
<i>Kazuue Fujita</i>	
ROOM TEMPERATURE, SINGLE-MODE 1.0 THZ NONLINEAR QUANTUM-CASCADE LASER .....	309
<i>Shohei Hayashi, Akio Ito, Masahiro Hitaka, Kazuue Fujita</i>	
TERAHERTZ INTERSUBBAND ELECTROLUMINESCENCE FROM ZNO QUANTUM CASCADE STRUCTURES .....	311
<i>B. Meng, B. Hinkov, H. Hoang, M. Hugues, N. Le Biavan, D. Stark, G. Strasser, J.-M. Chauveau, Jérôme Faist</i>	
REAL-TIME TERAHERTZ WAVE SPECTROMETER USING PULSE TRAIN .....	312
<i>Rie Kawaguchi, Kodo Kawase, Shin'Ichiro Hayashi, Kosuke Murate</i>	
ALL ELECTRONIC THZ WAVE ABSORPTION SPECTROSCOPY OF VOLATILE ORGANIC COMPOUNDS BETWEEN 220–330 GHZ.....	314
<i>Tim E. Rice, Muhammad Waleed Mansha, Arshad Chowdhury, Mona M. Hella, Ingrid Wilke, Matthew A. Oehlschlaeger</i>	
A PORTABLE TERAHERTZ/MILLIMETER-WAVE SPECTROMETER BASED ON SIGE BICMOS TECHNOLOGY FOR GAS SENSING APPLICATIONS .....	316
<i>Nick Rothbart, Klaus Schmalz, Heinz-Wilhelm Hübers</i>	
TERAHERTZ CHARACTERIZATION OF ROMAN AMPHORA SHERDS.....	318
<i>Min Zhai, Alexandre Locquet, C. Carreras Monfort, Kevin Alexandre Kazek, D. S. Citrin</i>	
FIRING TEMPERATURE OF ANCIENT CERAMIC SHARDS ESTIMATED BY TERAHERTZ SPECTROSCOPY.....	319
<i>Seiji Nijima, Hiroaki Taniguchi, Kodo Kawase</i>	



QUALITY CONTROL OF CONDUCTIVE INK DISTRIBUTION USING TERAHERTZ SPECTROSCOPY.....	321
<i>M. Zhuldybina, X. Ropagnol, C. Bois, R. J. Zednik, F. Blanchard</i>	
MULTI-CYCLE THZ DRIVEN ELECTRON ACCELERATION AND THZ-ENERGY RECYCLING.....	322
<i>N. H. Matlis, D. Zhang, M. Fakhari, H. Cankaya, A.-L. Calendron, F. X. Kärtner</i>	
BROADBAND DIELECTRIC WAVEGUIDES FOR 0.5–1.1 THZ OPERATION .....	324
<i>Amlan K. Mukherjee, Mingjun Xiang, Sascha Preu</i>	
EXPERIMENTS ON GENERATION OF VORTEX SURFACE PLASMON POLARITONS ON PLANE AND CYLINDRICAL CONDUCTORS IN MID-INFRARED AND THZ RANGES .....	326
<i>Boris A. Knyazev, Yulia Yu. Choporova, Vasily V. Gerasimov, Oleg E. Kameshkov, Alexey K. Nikitin, Natalya D. Osintseva, Vladimir S. Pavelyev, Nikolay A. Vinokurov, Andrey N. Agafonov, Valery S. Cherkassky, Spartak E. Krasnopevtsev, Alexey G. Lemzyakov, Konstantin N. Tukmakov</i>	
ELECTRO-OPTIC SAMPLING OF TERAHERTZ PULSES BY USING GAAS AND TAPERED PARALLEL PLATE WAVEGUIDE.....	328
<i>Hideaki Kitahara, Masaki Shiihara, Akihiro Esaki, Hiroki Takeuchi, Takashi Furuya, Elmer Estacio, Kohji Yamamoto, Mary Clare Escaño, Michael I. Bakunov, Masahiko Tani</i>	
CONTROLLING AND SHAPING THE THZ EMISSION FROM QUANTUM CASCADE LASERS .....	329
<i>S. Schönhuber, M. Kainz, B. Limbacher, M. Wenclawiak, A. M. Andrews, G. Strasser, J. Darmo, K. Unterrainer</i>	
THZ SPECTROSCOPY, HOLOGRAPHIC APPROACH AND PHANTOMS DESIGN FOR THE DIAGNOSTICS OF SOCIALLY SIGNIFICANT DISEASES .....	332
<i>O. Smolyanskaya, N. Petrov, M. Nazarov, V. Vaks, Yu. Kistenev, O. Cherkasova, J.-P. Guillet, P. Mounaix, A. Shkurinov</i>	
DYNAMIC TERAHERTZ INVESTIGATION OF NANOPARTICLE-ASSISTED LASER-TISSUE INTERACTION.....	334
<i>Junliang Dong, Holger Breitenborn, Riccardo Piccoli, Lucas V. Besteiro, Pei You, Diego Caraffini, Zhiming M. Wang, Alexander O. Govorov, Rafik Naccache, Fiorenzo Vetrone, Luca Razzari, Roberto Morandotti</i>	
TERAHERTZ IMAGING FOR TOPICAL AND MICRO/NANO NEEDLE PATCH DRUG DELIVERY .....	335
<i>Jiarui Wang, Emma Pickwell-Macpherson</i>	
IN VIVO CHARACTERIZATION OF PARTIAL-THICKNESS BURN INJURIES USING THZ TIME-DOMAIN SPECTRAL IMAGING IN A PORCINE MODEL.....	337
<i>Omar B. Osman, Juin W. Zhou, Zachery B. Harris, Mahmoud E. Khani, Andrew Chen, Adam J. Singer, M. Hassan Arbab</i>	
LOW-FREQUENCY VIBRATIONAL SPECTROSCOPY OF $\gamma$ -AMINOBUTYRIC ACID DERIVATIVES: GABA HYDROCHLORIDE AND $\beta$ -PHENYL-GABA HYDROCHLORIDE.....	339
<i>Sara J. Dampf, Timothy M. Korter</i>	
SUPER RESOLUTION SPECTROSCOPY FOR THZ-TDS: APPLICATION TO GAS SPECTROSCOPY.....	340
<i>S. Eliet, M. Mouelhi, A. Cuisset, F. Hindle, J.-F. Lampin, R. Peretti</i>	

SPECTRAL ANALYSIS OF A GAS-PHASE REACTION USING SELF-MIXING IN A TERAHERTZ QUANTUM CASCADE LASER .....	341
<i>E. Nuttall, Y. J. Han, M. D. Horbury, N. Brewster, M. Oldfield, L. H. Li, A. G. Davies, E. H. Linfield, B. N. Ellison, P. Dean, D. Stone, J. H. Lehman, A. Valavanis</i>	
NANOWIRE-BASED DEVICES FOR THZ POLARIMETRY.....	343
<i>Michael B. Johnston</i>	
DEVELOPMENT OF A MILLIMETER-WAVE TRANSDUCER FOR QUANTUM NETWORKS .....	344
<i>Kevin K. S. Multani, Hubert Stokowski, Emma Snively, Rishi Patel, Wentao Jiang, Nathan Lee, Paul B. Welander, Emilio A. Nanni, Amir H. Safavi-Naeini</i>	
A WR-5 (140-220 GHZ) QUASI-OPTICAL PHASE SHIFTER ARRAY BASED ON GAAS SCHOTTKY DIODES INTEGRATED ON THIN SILICON MEMBRANES .....	346
<i>Souheil Nadri, Masoud Jafari, Robert M. Weikle</i>	
FEMTOSECOND LASER MICROFABRICATION FOR THZ COMPONENTS .....	348
<i>S. Antipov</i>	
PERSPECTIVES ON ELECTRICALLY PUMPED GE/SIGE QW EMITTERS AT THZ FREQUENCIES .....	349
<i>C. Ciano, M. Montanari, L. Persichetti, D. Stark, G. Scalari, J. Faist, L. Di Gaspare, G. Capellini, C. Corley, T. Grange, S. Birner, M. Virgilio, L. Baldassarre, M. Ortolani, M. De Seta</i>	
CONTINUOUS-WAVE LINES UP TO 5.5 THZ FROM THE AMMONIA LASER PUMPED BY A QUANTUM CASCADE LASER.....	351
<i>J.-F. Lampin, M.-H. Mamméz, Z. Buchanan, M. Micica, O. Pirali, M.-A. Martin-Drumel, S. Eliet, S. Barbieri, F. Hindle, P. Roy, G. Mouret</i>	
POST-PROCESSING GHZ-LEVEL FREQUENCY TUNING OF THZ QUANTUM CASCADE LASERS .....	352
<i>Tudor Olariu, Mattias Beck, Giacomo Scalari, Jérôme Faist</i>	
HIGHLY EFFICIENT ONE-DIMENSIONAL QUASI-CRYSTALLINE THZ SEMICONDUCTOR LASERS.....	354
<i>Simone Biasco, Andrea Ciavatti, Lianhe Li, A. Giles Davies, Edmund H. Linfield, Harvey Beere, David Ritchie, Miriam S. Vitiello</i>	
ULTRAFAST RESPONSE OF HARMONIC MODELOCKED THZ LASERS .....	355
<i>Valentino Pistore, F. Wang, M. Riesch, H. Nong, P-B. Vigneron, R. Colombelli, O. Parillaud, J. Mangeney, J. Tignon, C. Jirauschek, S. Dhillon</i>	
DEVELOPMENT OF CRYOGENIC SCATTERING-TYPE THERMAL NEAR-FIELD MICROSCOPE .....	356
<i>K.-T. Lin, Q. Weng, S. Kim, S. Komiyama, Y. Kajihara</i>	
DETERMINATION OF THE FINE STRUCTURE OF A HALIDE PEROVSKITE USING HIGH- RESOLUTION THZ SPECTROSCOPY AND SOLID-STATE DENSITY FUNCTIONAL THEORY.....	358
<i>Feng Zhang, Izuru Karimata, Hong-Wei Wang, Takashi Tachikawa, Keisuke Tominaga, Michitoshi Hayashi, Tetsuo Sasaki</i>	
TRACING PHOTODETECTION OF THZ FREQUENCY LIGHT IN INAS NANOWIRE FIELD EFFECT TRANSISTORS VIA NEAR-FIELD THZ NANOSCOPY .....	360
<i>Eva A. A. Pogna, Mahdi Asgari, Valentina Zannier, Lucia Sorba, Leonardo Viti, Miriam S. Vitiello</i>	

HYPERSPECTRAL 2D IR IMAGING: PRINCIPLES AND APPLICATIONS TO BIOLOGICAL AND MATERIALS SYSTEMS.....	361
<i>Martin T. Zanni</i>	
ULTRA-SLOW RECOMBINATION OF CARRIERS AT LOW DENSITY AND ENERGY IN NEUTRAL GRAPHENE-HBN VAN DER WAALS HETEROSTRUCTURES.....	363
<i>J. Mangeney, P. Huang, E. Riccardi, S. Messelot, H. Graef, F. Valmorra, J. Tignon, T. Taniguchi, K. Watanabe, S. Dhillon, B. Plaçais, R. Ferreira</i>	
EXCITONS IN TWISTED VAN DER WAALS BILAYERS: INTERNAL STRUCTURE AND ULTRAFAST DYNAMICS.....	365
<i>Fabian Mooshammer, Philipp Merkl, Simon Ovesen, Samuel Brem, Anna Girnghuber, Kai-Qiang Lin, Marlene Liebich, Chaw-Keong Yong, Rolang Gillen, Janina Maultzsch, John M. Lupton, Ermin Malic, Rupert Huber</i>	
UNVEILING THE ULTRAFAST OPTOELECTRONIC PROPERTIES OF 3D DIRAC SEMI-METAL $CD_3AS_2$ .....	367
<i>Jessica L Boland, Chelsea Q Xia, Djamshid A Damry, Piet Schönherr, Thorsten Hesjedal, Laura M Herz, Michael B Johnston</i>	
INFRARED SYMMETRY BREAKING IN $YBa_2Cu_3O_{7-x}$ AS A FUNCTION OF ENERGY, DOPING, AND TEMPERATURE .....	368
<i>J. Seo, T. Gujar, J. Barber, H. Zhang, C. Zhang, T. Kirzhner, G. Koren, J. Y. T. Wei, J. Cerne</i>	
TWO-DIMENSIONAL THZ SPECTROSCOPY OF MULTIFERROIC $BiFeO_3$ .....	370
<i>Brittany E. Knighton, Megan F. Nielson, Aldair Alejandro, Lauren M. Davis, R. Tanner Hardy, Min-Cheol Lee, Aiping Chen, Rohit P. Prasankumar, Jeremy A. Johnson</i>	
EXTRACTING ANHARMONIC COUPLING CONSTANTS FROM BETA-BARIUM BORATE.....	372
<i>Megan F. Nielson, Brittany E. Knighton, Lauren Rawlings, Aldair Alejandro, R. Tanner Hardy, Jeremy A. Johnson</i>	
2D - THZ-SPECTROSCOPY ON A QUANTUM CASCADE STRUCTURE.....	373
<i>S. Markmann, M. Franckić, S. Pal, M. Fiebig, D. Stark, M. Beck, G. Scalari, J. Faist</i>	
2D THZ STUDIES OF GAAS METAMATERIALS .....	374
<i>Clayton D. Moss, Benjamin R. Heiner, Shayne A. Sorenson, Jeremy A. Johnson</i>	
COMMUNICATIONS WITH TERAHERTZ SLAB-MODE BEAM.....	375
<i>Daniel Headland, Naoki Nishigami, Masayuki Fujita, Tadao Nagatsuma</i>	
A PHOTONIC TRANSMITTER FOR BEAM SWITCHING IN MM-WAVE WIRELESS LINKS .....	377
<i>A. J. Pascual, T. Batté, O. De Sagazan, G. Carpintero, R. Sauleau, D. González-Ovejero</i>	
ALL-PHOTONIC HETERODYNE SUB-THZ WIRELESS TRANSMISSION AT 80 GHZ, 120 GHZ AND 160 GHZ CARRIER FREQUENCIES.....	378
<i>A. Morales, G. I. Nazarikov, S. Rommel, C. Okonkwo, I. Tafur Monroy</i>	
H-BAND SILICON LENS ANTENNA WITH QUARTZ LEAKY-WAVE FEEDER AND NOVEL CHIP INTERCONNECT.....	380
<i>Marta Arias Campo, Katarzyna Holc, Arnulf Leuther, Rainer Weber, Simona Bruni, Nuria Lombart</i>	
TERAHERTZ SPINTRONIC EMITTER WITH ARBITRARILY CONTROLLABLE LINEAR POLARIZATION PROPERTIES NOT NEEDING A ROTATING MAGNETIC BIAS .....	381
<i>Pierre Koleiák, Kamil Postava, Lampin Jean-François, Nicolas Tiercelin, Mathias Vanwolleghem</i>	

ONSET-TIME CONTROL OF THZ TRANSIENTS GENERATED BY SPINTRONIC EMITTERS .....	383
<i>Genyu Chen, Roman Adam, Daniel E. Bürgler, Derang Cao, Anthony Pericolo, Jing Cheng, Ivan Komissarov, Sarah Heidtfeld, Leszek Gladczyk, Piotr Przyslupski, Hilde Hardtdegen, Martin Mikulics, Claus M. Schneider, Roman Sobolewski</i>	
ULTRAFAST SPIN-CHARGE CONVERSION IN RASHBA STATES PROBED BY TERAHERTZ TIME-DOMAIN EMISSION SPECTROSCOPY .....	385
<i>E. Rongione, J. Hawecker, T. H. Dang, H. Nong, L. Moreno, J. Mangeney, J. Tignon, F. Godel, S. Collin, P. Seneor, J.-M. George, M. Bibes, P. Bortolotti, R. Lebrun, S. Dhillon, H. Jaffrès</i>	
A 1550-NM-WAVELENGTH COMPATIBLE PHOTOCONDUCTIVE MICROPROBE TRANSCIEVER FOR TERAHERTZ NEAR-FIELD REFLECTION MEASUREMENTS.....	386
<i>Alexander Michalski, Simon Sawallich, Michael Nagel</i>	
GENERATION AND MANIPULATION OF CHIRAL TERAHERTZ WAVES IN IRON- TOPOLOGICAL INSULATOR HETEROSTRUCTURES.....	388
<i>Xinhou Chen, Hangtian Wang, Gaoshuai Wei, Chun Wang, Haihui Zhao, Fengwei Guo, Tianxiao Nie, Jungang Miao, Li Wang, Weisheng Zhao, Xiaojun Wu</i>	
COMB-LOCKED FREQUENCY-DOMAIN SPECTROSCOPY OF ULTRAHIGH-Q TERAHERTZ WHISPERING-GALLERY MODES .....	390
<i>Thomas A. Puppe, Dominik W. Vogt, Yuriy Mayzlin, Anselm J. Deninger, Rafal Wilk</i>	
PARTS-PER-MILLION WATER VAPOR SENSING USING AN ULTRAHIGH-Q THZ DISC MICRORESONATOR.....	392
<i>Dominik Walter Vogt, Angus Harvey Jones, Rainer Leonhardt</i>	
UNCLAD MICROPHOTONIC WAVEGUIDE BEND .....	394
<i>Daniel Headland, Withawat Withayachumnankul, Masayuki Fujita, Tadao Nagatsuma</i>	
50-GBIT/S TERAHERTZ COMMUNICATION USING A VALLEY PHOTONIC CRYSTAL WAVEGUIDE.....	396
<i>Julian Webber, Yuichiro Yamagami, Guillaume Ducournau, Pascal Szriftgiser, Masayuki Fujita, Tadao Nagatsuma, Ranjan Singh</i>	
MATERIAL EVALUATION FOR INNER METALLIC COATING OF HOLLOW DIELECTRIC THZ WAVEGUIDES.....	398
<i>Yuyuan Huang, Kuniaki Konishi, Momoko Deura, Yusuke Shimoyama, Junji Yumoto, Makoto Kuwata-Gonokami, Yukihiko Shimogaki, Takeshi Momose</i>	
RESONANT TUNNELING DIODE ARRAY OSCILLATOR INTEGRATED WITH SLOT-RING ANTENNA FOR TERAHERTZ WIRELESS COMMUNICATIONS.....	400
<i>Shuya Iwamatsu, Naoki Nishigami, Yousuke Nishida, Masayuki Fujita, Tadao Nagatsuma</i>	
SUBSTRATE-ILLUMINATED THZ ANTENNA-COUPLED DETECTORS IN CMOS: ANALYTICAL AND EXPERIMENTAL COMPARISON OF VARIOUS DESIGNS.....	402
<i>M. Ferreras, D. Cibiraite-Lukenskiene, A. Lisauskas, J. Grajal, V. Krozer</i>	
NOVEL RTD OSCILLATOR WITH SIMPLIFIED STRUCTURE AND FABRICATION PROCESS.....	404
<i>Ta Van Mai, Yusei Suzuki, Safumi Suzuki, Masahiro Asada</i>	
A 0.26 THZ POWER UNIT INTEGRATED WITH AN ON-CHIP WAVEGUIDE IN A 0.13 $\mu$ M SIGE TECHNOLOGY .....	406
<i>Hao Gao, Jixin Chen, Wei Hong</i>	

THE PROGRESS IN THE DEVELOPMENT OF GYROTRONS FOR PLASMA INSTALLATIONS IN RUSSIA .....	408
<i>A. G. Litvak, G. G. Denisov, A. G. Ereemeev, M. Yu. Glyavin, E. A. Kopelovich, L. G. Popov, A. N. Kufitin, E. V. Sokolov, E. A. Soluyanov, E. M. Tai, A. I. Tsvetkov, V. E. Zapevalov</i>	
0.22-THZ FREQUENCY-TUNABLE GYROTRON WITH TRANSVERSE SLICED CAVITY .....	409
<i>Xiaotong Guan, Wenjie Fu, Dun Lu, Tongbin Yang, Xuesong Yuan, Yang Yan</i>	
OPERATION OF THE MODULAR KIT 170 GHZ – 2 MW LONGER-PULSE COAXIAL- CAVITY GYROTRON WITH PULSES UP TO 50 MS .....	411
<i>Z. C. Ioannidis, T. Rzesnicki, K. A. Avramidis, G. Gantenbein, S. Illy, J. Jin, L. Krier, I. Gr. Pagonakis, S. Ruess, M. Schmid, M. Thumm, J. Jelonnek</i>	
THEORETICAL STUDY ON THE POSSIBILITY FOR STEPWISE TUNING OF THE FREQUENCY OF THE KIT 2 MW 170/204 GHZ COAXIAL-CAVITY GYROTRON .....	413
<i>T. Ruess, K. A. Avramidis, G. Gantenbein, S. Illy, T. Rzesnicki, M. Thumm, J. Jelonnek</i>	
THZ STUDIES OF CONDUCTIVE METAL-ORGANIC FRAMEWORKS .....	415
<i>Brian Pattengale, Ryotaro Okabe, Sarah Ostresh, Charles A. Schmuttenmaer</i>	
COMPARISON OF OPTOELECTRONIC TIME- AND FREQUENCY-DOMAIN SYSTEMS FOR SINGLE- AND MULTILAYER THICKNESS MEASUREMENTS .....	416
<i>Lars Liebermeister, Simon Nellen, Robert B. Kohlhaas, Sebastian Lauck, Milan Deumer, Steffen Breuer, Björn Globisch</i>	
BROADBAND AND HIGH-SENSITIVITY TIME-RESOLVED THZ SYSTEM WITH GRATING-ASSISTED NONCOLLINEAR PHASE-MATCHING.....	418
<i>Wei Cui, Kashif Masud Awan, Ksenia Dolgaleva, Jean-Michel Ménard</i>	
30 KHZ THZ PULSE DETECTION BASED ON ELECTRO-OPTICAL SAMPLING.....	420
<i>Milan Oeri, Sami Wittmann, Ole Peters, Ronald Holzwarth</i>	
NONLINEAR IR AND THZ SPECTROSCOPY OF SEMICONDUCTOR NANOWIRES .....	422
<i>M. Helm, I. Fotev, L. Balaghi, D. Lang, R. Rana, S. Winnerl, H. Schneider, E. Dimakis, A. Pashkin</i>	
PICOSECOND PHOTOCONDUCTIVITY AND VIBRATIONAL MODE SCREENING IN DOUBLE HELIX TIN IODIDE PHOSPHORUS.....	424
<i>David N. Porschke, Markus Pielmeier, Ebru Üzer, Claudia Ott, Annabelle Degg, Anna Vogel, Naaman Amer, Tom Nilges, Frank A. Hegmann</i>	
PICOSECOND CARRIER DYNAMICS IN THZ HGTE NANOCRYSTALS .....	426
<i>T. Apretna, S. Massabeau, N. Goubet, C. Gréboval, S. Dhillon, E. Lhuillier, J. Mangeney</i>	
COHERENT EMISSION FROM THE NONPOLAR OPTICAL PHONON OF DIAMOND .....	428
<i>Cornelius Beckh, Niklas Fritzsche, Alfred Leitenstorfer</i>	
ACHIEVEMENTS AND CHALLENGES FOR ITER HEATING & CURRENT DRIVE SYSTEMS.....	430
<i>C. Darbos, B. Beaumont, D. Boilson, M. A. Henderson, C. Rotti</i>	
TERAHERTZ COMMUNICATIONS: FROM NANOMATERIALS TO ULTRABROADBAND NETWORKS.....	432
<i>Josep Miquel Jornet</i>	

REAL-TIME DIGITAL BASEBAND SYSTEM FOR ULTRA-BROADBAND THZ COMMUNICATION .....	434
<i>Viduneth Ariyaratna, Arjuna Madanayake, Josep Miquel Jornet</i>	
WIRELESS COMMUNICATION LINK AT 300 GHZ WITH UP TO 160 GBIT/S.....	436
<i>S. Nellen, S. Lauck, E. Peytavit, P. Szriftgiser, G. Ducournau, B. Globisch</i>	
FLY'S EYE LENSES FOR WIDEBAND BEYOND 5G COMMUNICATIONS.....	437
<i>Marta Arias Campo, Giorgio Carluccio, Darwin Blanco, Oliver Litschke, Simona Bruni, Nuria Llombart</i>	
DEVELOPMENT OF HIGH-FREQUENCY GYROTRONS FOR SPECTROSCOPY AND PLASMA HEATING APPLICATIONS.....	438
<i>Monica Blank, Philipp Borchard, Stephen Cauffman, Kevin Felch</i>	
RECENT DEVELOPMENT OF A 1.5 MW, 140 GHZ CONTINUOUS-WAVE GYROTRON FOR THE UPGRADED ECRH SYSTEM AT W7-X .....	440
<i>Stefan Illy, Konstantinos A. Avramidis, Zisis C. Ioannidis, Gaetano Aiello, Patrick Bénin, Ioannis Chelis, Andreas Dinklage, Gerd Gantenbein, John Jelonnek, Jianbo Jin, Heinrich P. Laqua, Alberto Leggieri, François Legrand, Alexander Marek, Stefan Marsen, Ioannis Gr. Pagonakis, Tobias Ruess, Tomasz Rzesnicki, Theo Scherer, Dirk Strauss, Manfred Thumm, Ioannis Tigelis, Dietmar Wagner, Jörg Weggen, Robert C. Wolf</i>	
STUDIES OF THE EFFECT FROM REFLECTION WITH A SHORT-PULSE HIGH-POWER GYROTRON.....	442
<i>J. Genoud, J. Picard, S. Schaub, S. Jawla, M. Shapiro, R. Temkin</i>	
SIMULTANEOUS GYROTRON OPERATION AT SEVERAL CYCLOTRON HARMONICS: THEORY AND EXPERIMENT .....	443
<i>M. Yu. Glyavin, A. P. Gashturi, I. V. Zotova, A. P. Fokin, A. G. Luchinin, A. I. Tsvetkov, R. M. Rozental, E. S. Semenov, A. S. Sergeev, G. S. Nusinovich</i>	
TERAHERTZ QUANTUM CASCADE LASER FREQUENCY COMB OPERATION OF A COUPLED WAVEGUIDE ARRAY .....	444
<i>U. Senica, P. Micheletti, M. Beck, J. Faist, G. Scalari</i>	
ULTRAFAST THZ INTERSUBBAND POLARITON SATURABLE ABSORBER INTEGRATED WITH A QUANTUM CASCADE FREQUENCY COMB .....	446
<i>Leonardo Viti, Francesco P. Mezzapesa, Jürgen Raab, Lianhe Li, A. Giles Davies, Edmund H. Linfield, Christoph Lange, Rupert Huber, Miriam S. Vitiello</i>	
SEMICONDUCTOR THZ FREQUENCY COMBS EXPLOITING SOLUTION PROCESSED GRAPHENE.....	447
<i>Francesco P. Mezzapesa, Katia Garrasi, Johannes Schmidt, Luca Salemi, Lianhe Li, A. Giles Davies, Edmund H. Linfield, Tian Carey, Felice Torrisi, Andrea C. Ferrari, Miriam S. Vitiello</i>	
CHARACTERIZATION OF NARROWBAND 100 GHZ SIGNALS GENERATED BY A SPECTRALLY INTERLEAVED MICROCOMB SOURCE.....	448
<i>Kentaro Furusawa, Isao Morohashi, Norihiko Sekine, Akifumi Kasamatsu, Yoshinori Uzawa</i>	
TERAHERTZ DIAGNOSTIC SYSTEMS BASED ON FREQUENCY COMBS WITHOUT MOVING PARTS .....	450
<i>E. Bründermann, I. Morohashi, S. Nakajima, S. Saito, N. Sekine, A.-S. Müller, I. Hosako</i>	

MAPPING THE ULTRAFAST CHARGE TRANSFER IN VAN DER WAALS HETEROSTRUCTURES .....	452
<i>Markus Plankl, Martin Zizlsperger, Fabian Mooshammer, Felix Schiegl, Fabian Sandner, Thomas Siday, Markus A. Huber, Jessica L. Boland, Tyler L. Cocker, Rupert Huber</i>	
THZ CONDUCTIVITY AND PHOTO-INDUCED CARRIER DYNAMICS IN A GRAPHENE, MOS <sub>2</sub> , GRAPHENE HETEROSTRUCTURE .....	454
<i>A. Singh, A. Nivedan, S. Kumar, M. Tondusson, J. Degert, J. Oberle, S. J. Yun, Y. H. Lee, E. Freysz</i>	
TIME-RESOLVED THZ TIME-DOMAIN NEAR-FIELD MICROSCOPY OF EXFOLIATED SINGLE FLAKES OF WS <sub>2</sub> .....	456
<i>Stan Ter Huurne, Niels Van Hoof, Sara Elrafey, Alberto Curto, Jaime Gómez-Rivas</i>	
AN INTRODUCTION TO JAPANESE R&D PROJECTS ON 300-GHZ BAND WIRELESS COMMUNICATIONS .....	458
<i>Akifumi Kasamatsu</i>	
OBJECT DETECTION WITHOUT LINE OF SIGHT USING LEAKY THZ WAVEGUIDE .....	460
<i>Yasith Amarasinghe, Daniel M. Mittleman</i>	
A 4-GB/S LASER-FREE PICOSECOND IMPULSE TRANSMITTER WITH A BROADBAND ON-CHIP ANTENNA.....	462
<i>Mostafa Hosseini, Aydin Babakhani</i>	
SECURE COMMUNICATION CHANNELS USING ATMOSPHERE-LIMITED LINE-OF- SIGHT TERAHERTZ LINKS .....	464
<i>Zhaoji Fang, Daniel M. Mittleman</i>	
EXTREME TERAHERTZ-WAVE PARAMETRIC OSCILLATOR AND ITS APPLICATION .....	466
<i>Hiroaki Minamide, Kouji Nawata</i>	
TAILORING TERAHERTZ PULSES WITH MOVING FRONTS: TEMPORAL STRETCHING AND TIME-REVERSAL.....	468
<i>Aidan W. Schiff-Kearn, Lauren Gingras, Simon Bernier, Nima Chamanara, Kartiek Agarwal, Jean-Michel Ménard, David G. Cooke</i>	
ROOM TEMPERATURE ULTRA-FAST AMPLITUDE MODULATOR OF MID-IR LASER BEAMS .....	470
<i>Stefano Pirodda, Ngoc-Linh Tran, Giorgio Biasiol, Arnaud Jollivet, Paul Crozat, Jean-Michel Manceau, Adel Bousseksou, Raffaele Colombelli</i>	
DIRECT GENERATION OF TWO FREQUENCY-ENTANGLED PHOTON PAIRS BY QUASI- PHASE-MATCHED PARAMETRIC DOWN-CONVERSION .....	471
<i>Masayuki Hojo, Koichiro Tanaka</i>	
PROBING THE LOW-TEMPERATURE PHASE TRANSITION IN ER <sub>x</sub> Y <sub>1-x</sub> FEO <sub>3</sub> BY TERAHERTZ MAGNETOSPECTROSCOPY.....	472
<i>N. Marquez Peraca, M. Bamba, K. Hayashida, X. Li, X. Ma, T. Makihara, D. Fallas Padilla, C.-L. Huang, E. Morosan, Han Pu, S. Cao, J. Kono</i>	
MANIPULATION OF FERROMAGNETIC DOMAIN BY THE TERAHERTZ FREE ELECTRON LASER EXCITATION.....	474
<i>M. Nakajima, T. Kurihara, T. Shimizu, Y. Koike, G. Isoyama</i>	

PHOTOELECTROMAGNETIC EFFECT INDUCED BY TERAHERTZ LASER RADIATION IN TOPOLOGICAL CRYSTALLINE INSULATORS $PB_{1-x}SN_x$ TE .....	476
<i>Alexandra V. Galeeva, Aleksei S. Kazakov, Anton V. Ikonnikov, Aleksei I. Artamkin, Dmitry A. Belov, Ludmila I. Ryabova, Valentine V. Volobuev, Gunther Springholz, Sergey N. Danilov, Dmitry R. Khokhlov</i>	
FINE STRUCTURE OF EXCITONIC EXCITED STATES IN DIAMOND STUDIED BY BROADBAND TERAHERTZ TIME-DOMAIN SPECTROSCOPY .....	478
<i>T. Ichii, N. Naka, K. Tanaka</i>	
GATE-READOUT OF PHOTOVOLTAGE FROM A GRATING-GATE PLASMONIC THZ DETECTOR .....	480
<i>Takumi Negoro, Taku Saito, Tomotaka Hosotani, Taiichi Otsuji, Yuma Takida, Hiromasa Ito, Hiroaki Minamide, Akira Satou</i>	
DISTINCTION OF THE THERMOELECTRIC EFFECT IN GRAPHENE FET THZ DETECTORS .....	482
<i>Andrey A. Generalov, Florian Ludwig, Mohsen Ahmadi, Marlene Bonmann, Andrei Vorobiev, Miika Soikkeli, Sanna Arpiainen, Mika Prunnila, Jan Stake, Hartmut G. Roskos, Zhipei Sun</i>	
LOW-NEP ROOM-TEMPERATURE BROADBAND THZ DIRECT DETECTION WITH A 0.13- $\mu$ M SIGE HBT DEVICE .....	484
<i>J. Grzyb, M. Andree, R. Jain, B. Heinemann, U. R. Pfeiffer</i>	
SENSITIVE CONTINUOUS-WAVE TERAHERTZ DETECTION BY RESONANT- TUNNELING-DIODE OSCILLATORS .....	486
<i>Yuma Takida, Safumi Suzuki, Masahiro Asada, Hiroaki Minamide</i>	
LAYER-THICKNESS MEASUREMENTS WITH INCOHERENT TERAHERTZ LIGHT .....	488
<i>D. Molter, M. Kolano, J. Klier, S. Weber, J. Jonuscheit, G. Von Freymann</i>	
A PLASMONIC ARRAY ARCHITECTURE FOR MULTI-BEAM SPATIAL MULTIPLEXING AT THZ FREQUENCIES .....	490
<i>Arjun Singh, Viduneth Ariyaratna, Josep M. Jornet</i>	
MULTIMODAL SUB-THZ RADAR AND LIDAR IMAGING FOR NDE APPLICATIONS.....	492
<i>Vuong H. Truong, Jacob Bouchard, Douglas T. Petkie</i>	
A BALLOON-BORNE 4.75 THZ-HETERODYNE RECEIVER TO PROBE ATOMIC OXYGEN IN THE ATMOSPHERE .....	494
<i>M. Wienold, A. Semenov, H. Richter, H.-W. Hübers</i>	
WASTE OIL FEEDSTOCK QUALITY CONTROL USING THZ SPECTROSCOPY .....	496
<i>Polina S. Stefanova, Ruidong Ji, Andrew J. Gallant, Darren M. Graham, Claudio Balocco</i>	
REFERENCE FREE MATERIAL PARAMETER EXTRACTION OF SMALL OBJECTS BASED ON TERAHERTZ ELLIPSOMETRY .....	497
<i>B. Friederich, D. Damyanov, T. Schultze, J. C. Balzer</i>	
EVALUATION OF POSITION ERROR OF TERAHERTZ POLARIMETRIC ENCODER BY RAY-TRACING METHOD.....	499
<i>G. Yamashita, W. Tsujita, H. Tsutada, R. Ma, P. Wang, P. V. Orlik</i>	
TERAHERTZ DEEP LEARNING SUPER RESOLUTION IMAGING TRAINING ON SINOGRAM.....	501
<i>Zhao-Hong Tu, Yi-Chun Hung, Shang-Hua Yang</i>	



ANALYSIS OF CIRCULARLY POLARIZED TERAHERTZ WAVES SCATTERED BY ROUGH SURFACES FOR WIRELESS COMMUNICATIONS.....	503
<i>Yang Gao, Deyin Kong, Jianjun Ma, Cunjun Ruan, Jungang Miao, Xiaojun Wu</i>	
IMPROVING TIME RESOLUTION OF TERAHERTZ REFLECTED SIGNAL BASED ON SPARSE RECONSTRUCTION.....	505
<i>Yafei Xu, Zhen Zhang, Donghai Han, Zhonglei Shen, Liuyang Zhang, Xuefeng Chen</i>	
OBSERVING LIQUID WATER BUILD-UP IN PROTON EXCHANGE MEMBRANE FUEL CELLS USING TERAHERTZ IMAGING AND HIGH-RESOLUTION OPTICAL GAUGING.....	506
<i>Décio F. Alves-Lima, Harald Schlegl, Bryan M. Williams, Rosa Letizia, Richard Dawson, Hungyen Lin</i>	
TERAHERTZ QR POSITIONING: EXPERIMENTAL RESULTS .....	508
<i>P. Wang, T. Koike-Akino, P. V. Orlik, K. Sertel, G. Yamashita, W. Tsujita, H. Tsutada</i>	
FACE PRESENTATION ATTACK DETECTION WITH PASSIVE IMAGING AT 250 GHZ .....	510
<i>Marcin L. Kowalski</i>	
A RAY TRACING APPROACH TO THE SCATTERING OF ELECTROMAGNETIC WAVES FROM RANDOM ROUGH SURFACES AT TERAHERTZ FREQUENCIES .....	512
<i>Fawad Sheikh, Yida Zhang, Yamen Zanteh, I. Mabrouk, M. Hasan, Thomas Kaiser</i>	
LINK CONFIGURATION IMPACT ON HIGH-BANDWIDTH DIGITAL SIGNAL TRANSMISSION IN THE 300 GHZ BAND .....	513
<i>Ulrich Schumann, Kai Baaske, Thomas Kleine-Ostmann</i>	
DESIGN AND CHARACTERIZATION OF 3D PRINTED POLYMER TERAHERTZ MULTI- MODE INTERFERENCE COUPLERS.....	515
<i>X. Liu, C. Geng, X. Guo, K. Kolpatzeck, L. Häring, J. C. Balzer, A. Czynlik</i>	
DEVELOPMENT OF BROADBAND TERAHERTZ WAVE CIRCULAR POLARIZER USING 2D METALLIC HELIX ARRAY .....	517
<i>Saroj R. Tripathi, Hiroya Tomita</i>	
TERAHERTZ POLARIZER FABRICATED BY 3D PRINTING TECHNOLOGY .....	518
<i>Kuniaki Konishi, Hiroya Aoki, Mizuho Matoba, Kentaro Soeda, Shuichi Yokobori, Hiroharu Tamaru, Norikatsu Mio, Shinsuke Matsui, Makoto Kuwata-Gonokami, Junji Yumoto</i>	
FIRST MEASUREMENTS OF NBN BASED KIDS FOR POLARIMETRIC PLASMA DIAGNOSTICS .....	520
<i>F. Mazzocchi, D. Strauß, T. Scherer</i>	
CHARACTERIZATION OF BLACK-PLASTIC THZ-LOW-PASS, IR-BLOCKING FILTER: OBSERVATION OF A MINIMUM THZ ABSORPTION .....	521
<i>W-D. Zhang, A. Mingardi, E. R. Brown</i>	
HIGH Q FACTOR AND HIGH TRANSMITTANCE SUSPENDED MEMBRANE THZ PHC CAVITY: EXPERIMENTAL DEMONSTRATION FOR SENSING APPLICATIONS .....	522
<i>Elias Akiki, Mattias Verstuyft, Guillaume Ducournau, Benjamin Walter, Bart Kuyken, Jean- François Lampin, Mathias Vanwolleghem</i>	
TIP-GAP FIELD ENHANCEMENT IN THZ S-SNOM .....	524
<i>Zhuocheng Zhang, Min Hu, Xiaoqiuyan Zhang, Yueving Wang, Tianyu Zhang, Xingxing Xu, Sen Gong, Tao Zhao, Shenggang Liu</i>	

CONTROL OF RANDOM FLUCTUATIONS IN TERAHERTZ TIME-DOMAIN SPECTROMETER.....	525
<i>Muhammad Mumtaz, Sabih D. Khan, M. Arslan Shahzad, M. Aslam Zia, Mushtaq Ahmed, Izhar Ahmad</i>	
MULTI-WAVELENGTH-COUPLED IN-LINE PHARMACEUTICAL MONITORING INSPECTIONS WITH PHOTO-THERMOELECTRIC DEVICE DESIGN OF BROADBAND IMAGE SENSOR ARRAY SHEETS .....	527
<i>M. Sun, K. Li, R. Utaki, Y. Kawano</i>	
DESIGN OF A QUASIOPTICAL TEST BENCH FOR VNA EXTENDERS .....	529
<i>Irina Nefedova, Anis Moradikouchi, Mariangela Baggio, Aleksii Tamminen, Yong Hu, Juha Ala-Laurinaho, Helena Rodilla, Jan Stake, Zachary Taylor</i>	
CHEMICAL SMOOTHING AS A METHOD TO MANUFACTURE HIGH QUALITY 3D PRINTED OPTICAL COMPONENTS .....	531
<i>Rhiannon Lees, Heather Sanders, Michael D. Cooke, Claudio Balocco, Andrew J. Gallant</i>	
THZ MICROSCOPY OF ADDITIVE MANUFACTURED OPTICAL COMPONENTS.....	533
<i>Benedikt Hampel, Marco Tollkühn, Ilya Elenskiy, Meinhard Schilling</i>	
TERAHERTZ SURFACE PLASMON RESONANCE MICROSCOPY BASED ON GHOST IMAGING WITH PSEUDO-THERMAL SPECKLE LIGHT.....	534
<i>Ildus Sh. Khasanov, Lydia A. Zykova, Alexey K. Nikitin, Boris A. Knyazev, Vasily V. Gerasimov, Ta Thu Trang</i>	
BI-ASPHERIC SINGLET THZ LENSES FREE OF SPHERICAL ABERRATION.....	536
<i>Daena Madhi, Asger Kjærgård Pedersen, Peter Uhd Jepsen</i>	
SPECTROSCOPY OF HIGHLY CONDUCTIVE SMO THIN FILM IN THE THZ RANGE.....	537
<i>Stefan Regensburger, Aldin Radetinac, Philipp Komissinskiy, Lambert Alff, Sascha Preu</i>	
IMPROVING CARRIER LIFETIME OF AU-HYPERDOPED SI BY MATERIAL TAILORING.....	539
<i>S. Senali Dissanayake, Philippe K. Chow, Jeffrey M. Warrender, Meng-Ju Sher</i>	
MATERIAL PARAMETER EXTRACTION USING TERAHERTZ TIME-DOMAIN REFLECTION SPECTROSCOPY IN THE PRESENCE OF AIR GAPS.....	541
<i>Juin W. Zhou, Zachery B. Harris, Omar B. Osman, Andrew Chen, Mahmoud E. Khani, M. Hassan Arbab</i>	
MID- AND FAR-INFRARED SPECTRAL LINKS FOR CALCIUM CARBONATE POLYMORPHS .....	543
<i>Stephen Campbell, Boyang Gao, Kristin M. Poduska</i>	
MODIFICATION OF THE ELECTRONIC AND OPTICAL PROPERTIES OF AS <sub>2</sub> TE <sub>3</sub> UPON COPPER DOPING.....	545
<i>Jeremy Dion, Maureen Reedyk</i>	
OPTICAL PROPERTIES OF KGW CRYSTAL AND ITS POSSIBLE APPLICATIONS IN THE TERAHERTZ RANGE .....	547
<i>Valery D. Antsygin, Alexander A. Mamrashev, Nazar A. Nikolaev</i>	
INTERMOLECULAR INTERACTIONS DICTATING THE STRUCTURAL PROPERTIES OF CRYSTALLINE POROUS SOLIDS STUDIED WITH LOW-FREQUENCY VIBRATIONAL SPECTROSCOPY.....	549
<i>Z. Song, M. T. Ruggiero</i>	

ENHANCEMENT OF OPTICAL PROPERTIES OF TITANIUM DIOXIDE WITH DOPING IN THZ REGIME.....	550
<i>Muhammad Mumtaz, M. Ahsan Mahmood, Sabih D. Khan, M. Aslam Zia, Mushtaq Ahmed, Izhar Ahmad</i>	
DEHYDRATION PROCESS OF THE MONOHYDRATES OF ASPARAGINE ENANTIOMERS OBSERVED BY TERAHERTZ SPECTROSCOPY .....	552
<i>Jun Zhou, Lin Zhou, Zhenzhen Ge, Shuting Wu, Chengan Du</i>	
EVALUATION FOR GAN SINGLE CRYSTALS WITH HIGH DOPING CONCENTRATION BY THE TERAHERTZ ELLIPSOMETRY.....	554
<i>M. Nakajima, T. Iwamoto, H. Kitahara, K. Toya, V. K. P. Mag-Usara, Y. Koike, T. Shimizu, M. Imanishi, Y. Mori, M. Yoshimura</i>	
TEMPERATURE-DEPENDENT THZ REFRACTIVE INDEX OF GAP.....	556
<i>N. Hekmat, T. Vogel, F. Meyer, A. Omar, Y. Wang, M. Hoffmann, C. J. Saraceno</i>	
PULSED THZ EMISSION FROM WURTZITE PHASE CATALYST-FREE INAS NANOWIRES.....	558
<i>R. Adomavicius, I. Nevinskas, J. Treu, X. Xu, G. Koblmüller, A. Krotkus</i>	
SCATTERING OF QUASI-OPTICAL THZ BEAMS ON SPHERICAL MWCNTS AEROGELS.....	560
<i>I. O. Dorofeev, A. V. Badin, K. V. Dorozhkin, G. E. Dunaevskii, V. I. Suslyayev, S. I. Moseenkov, V. L. Kuznetsov</i>	
UNDERSTANDING THE EFFECT OF DISPERSION CORRECTIONS ON THE CALCULATED SPECTRA OF $\alpha$ -LACTOSE MONOHYDRATE.....	562
<i>Calum N. A. Towler, John Kendrick, Andrew D. Burnett</i>	
DIELECTRIC PROPERTIES OF 3D-PRINTING BA CONTAINING ABS COMPOSITES AT THZ FREQUENCY RANGE.....	564
<i>T. N. Shematilo, M. O. Gering, G. E. Kuleshov, A. V. Badin, K. V. Dorozhkin, G. E. Dunaevskii</i>	
LOW-FREQUENCY TERAHERTZ RAMAN SPECTRA OF GRAPHITE FLAKES AND SINGLE-WALLED CARBON NANOTUBE AEROGEL.....	566
<i>H. Zhang, J. Horvat, R. A. Lewis</i>	
TERAHERTZ TIME-DOMAIN SPECTROSCOPIC STUDY OF OXIDE GLASS WITH ENTROPIC ELASTICITY .....	568
<i>Jeonghyuk Kim, Tatsuya Mori, Seiji Inaba, Takanari Kashiwagi, Yasuhiro Fujii, Suguru Kitani, Hitoshi Kawaji, Akitoshi Koreeda, Soo Han Oh, Jae-Hyeon Ko, Seiji Kojima</i>	
THZ VIBRATIONAL MODES OF HALIDE DOUBLE PEROVSKITE $CS_2AGBIBR_6$ AT BAND GAP RESONANCE .....	570
<i>Collin Tower, Maureen Reedyk</i>	
VARIABLE THZ ATTENUATOR BASED ON 5BDSR MICROPARTICLES IN SYNTHETIC 80W-90 OIL .....	572
<i>Dmitry M. Ezhov, Zakhar S. Kochnev, Egor S. Savelyev, Victor N. Cherepanov, Alexander A. Mamrashev, Nazar A. Nikolaev, Valery A. Svetlichnyi</i>	
DIRECT SPECTROSCOPIC IMAGING OF MEDICINE TABLETS USING MONOCHROMATIC TUNABLE TERAHERTZ-WAVE SOURCE AND HIGHLY SENSITIVE SEMICONDUCTOR DETECTOR.....	574
<i>Yoshio Wada, Yoshiharu Urata, Hiroshi Ito, Yasuhiro Higashi</i>	

LOW DENSITY CARRIER MOBILITY IN SILICON AND GALLIUM ARSENIDE BY TWO-PHOTON TIME-RESOLVED TERAHERTZ SPECTROSCOPY.....	576
<i>Timothy J. Magnanelli, Edwin J. Heilweil</i>	
IDENTIFICATION, ASSIGNMENT, AND CHARACTERIZATION OF LOW-FREQUENCY DYNAMICS IN MICROPLASTIC POLLUTANTS.....	577
<i>E. A. Verhaeg, M. T. Ruggiero</i>	
AN INVESTIGATION OF THZ LABEL-FREE OPIOID SENSING.....	579
<i>W-D. Zhang, A. Bykhovski, L. Himed, Z-G. Yan, E. R. Brown</i>	
ABSORPTION PEAK SHAPE OF THE LOWEST VIBRATIONAL MODE OF $\beta$ -FORM D-MANNITOL OBSERVED BY HIGH FREQUENCY ACCURACY TERAHERTZ SPECTROSCOPY.....	580
<i>Tetsuo Sasaki, Tomoaki Sakamoto, Makoto Otsuka</i>	
ANISOTROPIC TERAHERTZ PERMITTIVITY OF $\beta$ -GA <sub>2</sub> O <sub>3</sub> .....	582
<i>Prashanth Gopalan, Ashish Chanana, Praneeth Ranga, Michael Scarpulla, Sriram Krishnamoorthy, Steve Blair, Berardi Sensale-Rodriguez</i>	
PROBING OF OLEIC ACID CAPPED CDSE QUANTUM DOT SURFACE USING VISIBLE-IR INFRARED SUM FREQUENCY GENERATION SPECTROSCOPY: POLARIZATION DEPENDENCE, COUPLING EFFECTS AND ORIENTATIONAL ANALYSIS.....	583
<i>Medini Rajapakse, Luis Velarde</i>	
ELECTRICAL PROPERTIES OF $\beta$ -GA <sub>2</sub> O <sub>3</sub> HOMOEPITAXIAL LAYER MEASURED BY TERAHERTZ TIME-DOMAIN SPECTROSCOPY.....	584
<i>Verdad C. Agulto, Kazuhiro Toya, Thanh Nhat Khoa Phan, Hideaki Kitahara, Valynn Katrine Mag-Usara, Melvin John F. Empizo, Toshiyuki Iwamoto, Ken Goto, Hisashi Murakami, Yoshinao Kumagai, Nobuhiko Sarukura, Masashi Yoshimura, Makoto Nakajima</i>	
REDSHIFTING OF THE FUNDAMENTAL MODE OF DL-ALANINE WITH INCREASING TEMPERATURE.....	586
<i>T. J. Sanders, J. L. Allen, J. Horvat, R. A. Lewis</i>	
ETALON EFFECTS IN THZ FILM MEASUREMENTS.....	588
<i>U. Schade, L. Puskar, E. Ritter, J. Beckmann</i>	
NOVEL TECHNIQUE FOR ON-LINE MONITORING OF THE CURING PROCESS OF FIBER REINFORCED POLYMER COMPOSITES.....	589
<i>J. Beckmann, L. Puskar, E. Ritter, U. Schade</i>	
COCRYSTAL FORMATION BETWEEN ISONIAZID AND PROTOCATECHUIC ACID BASED ON TERAHERTZ SPECTROSCOPY AND DFT SIMULATION.....	590
<i>Yanhua Bo, Ziming Zhang, Jiyuan Fang, Yong Du, Zhi Hong</i>	
TERAHERTZ INVESTIGATION OF DRUG-DRUG COCRYSTAL INVOLVING 4-AMINOSALICYLIC ACID AND PYRAZINAMIDE.....	592
<i>Ziming Zhang, Yong Du, Zhi Hong</i>	
COMPLEX PERMITTIVITY RECONSTRUCTION FOR MULTI-LAYERED OBJECT BY LOW COMPLEXITY CONTRAST SOURCE INVERSION METHOD.....	594
<i>Hayatomomaru Morimoto, Shouhei Kidera</i>	
HIGH RESOLUTION VNA THZ IMAGING FOR LARGE DISTANCES.....	596
<i>D. Damyanov, A. Batra, B. Friederich, K. Kolpatzeck, X. Liu, T. Kaiser, T. Schultze, J. C. Balzer</i>	

USING THZ-TDI FOR IDENTIFICATION OF PAINT LAYER DELAMINATION AND CONTROL OF ITS CONSOLIDATION.....	598
<i>Jan Ornik, Naja-Anissa Staats, Eva-Maria Stübling, Hans Dietmar Portsteffen, Martin Koch</i>	
THZ FOURIER IMAGING BASED ON SUB-HARMONIC HETERODYNE DETECTION .....	600
<i>Hui Yuan, Alvydas Lisauskas, Hartmut G. Roskos</i>	
HIGH DYNAMIC RANGE LENSLESS THZ IMAGING BASED ON HIGH-AVERAGE POWER THZ-TDS .....	601
<i>S. Mansourzadeh, D. Damyanov, T. Vogel, M. Hoffmann, J. C. Balzer, C. J. Saraceno</i>	
TENSILE STRESS MEASUREMENTS WITH PHOTOELASTIC SCATTERING AT THZ FREQUENCIES .....	603
<i>Polina S. Stefanova, Timon Hehne, Andreas K. Klein, Andrew J. Gallant, Claudio Balocco</i>	
IN-SITU DETERMINATION OF THE STATE OF CONSERVATION OF PAINT COATINGS ON THE KIOSK OF GUADALAJARA USING THZ-TDS .....	605
<i>F. E. M. Lambert, E. S. Reyes-Reyes, A. M. Gómez-Sepúlveda, G. G. Hernández-Cardoso, E. Castro-Camus</i>	
QUANTIFYING NAIL VARNISH DRYING USING A THZ VECTOR NETWORK ANALYSER .....	606
<i>Rhiannon Lees, Michael D. Cooke, Claudio Balocco, Andrew J. Gallant</i>	
INVESTIGATION OF THZ IMAGING ARTIFACTS GENERATED BY OVERSAMPLING AND INTERPOLATION OF DIFFRACTION-LIMITED LOW-RESOLUTION DATA.....	608
<i>Simon Sawallich, Alexander Michalski, Michael Nagel</i>	
SUPERCONDUCTING JOSEPHSON CANTILEVERS FOR THZ MICROSCOPY .....	610
<i>Marco Tollkühn, Benedikt Hampel, Ilya Elenskiy, Meinhard Schilling</i>	
DEVELOPMENT OF A FOURIER TRANSFORM SPECTROMETER TO ASSESS PERFORMANCE OF AN ANALOGUE OF THE SPICA SAFARI INSTRUMENT .....	611
<i>Anthony Huber, David Naylor, Alicia Anderson, Brad Gom, Trevor Fulton, Sudhakar Gunuganti</i>	
AN OPEN-SOURCE 3D-PRINTED TERAHERTZ PULSE TIME-DOMAIN HOLOGRAPHIC DETECTION MODULE FOR BROADBAND BEAM INSPECTION .....	613
<i>Yaroslav V. Grachev, Vladimir A. Kokliushkin, Nikolay V. Petrov</i>	
A NEXT GENERATION ULTRA SHORT PULSE REFLECTOMETER PLASMA DIAGNOSTIC.....	615
<i>Calvin W. Domier, Jon Dannenberg, Yilun Zhu, Neville C. Luhmann</i>	
QUADRATURE HYBRIDS FOR SIDEBAND SEPARATING RECEIVERS ON THE WSMA .....	617
<i>John D. Garrett, Lingzhen Zeng, Paul Grimes, Edward Tong</i>	
EFFECT OF CURRENT STEPS DURING PRODUCTION OF POROUS SILICON THZ FILTERS .....	619
<i>Z. Cronkwright, M. Reedyk</i>	
SUPERCRITICAL FLUID DEPOSITION TECHNIQUE ENABLING METALLIC COATING ONTO 3D-PRINTED POLYMER FOR FABRICATION OF HIGH-ASPECT-RATIO THZ DEVICES .....	621
<i>Takeshi Momose, Kuniaki Konishi, Yu Zhao, Hirotaka Morishita, Tetsuya Tsuchida, Yuyuan Huang, Hiroyuki Yasukochi, Kentaro Soeda, Momoko Deura, Yusuke Shimoyama, Junji Yumoto, Makoto Kuwata-Gonokami, Yukihiro Shimogaki</i>	

FINITE RATE OF INNOVATION PRINCIPLE APPLIED TO TERAHERTZ SIGNALS .....	623
<i>Xavier Ramirez Barker, Emma Pickwell-Macpherson</i>	
IMPROVEMENT OF TRANSMITTANCE USING GROOVE STRUCTURED SURFACE FOR MICROWAVE IMAGING DIAGNOSTICS IN TOKAMAK PLASMAS .....	624
<i>Xinhang Xu, Jinlin Xie, Lifu Zhang, Chengming Qu, Ge Zhuang, Wandong Liu</i>	
NON-CONTACT INSPECTION OF MOISTURE CHANGE BASED ON CW TERAHERTZ REFLECTOMETRY .....	626
<i>Satoshi Hashizume, Yasuaki Monnai</i>	
WIDE BAND QUASI-OPTICAL SYSTEM FOR DESHIMA 2.0 SPECTROMETER: BEAM PATTERN EXPERIMENTAL VALIDATION.....	628
<i>S. O. Dabironezare, K. Karatsu, S. Yates, V. Murugesan, D. J. Thoen, J. Baselmans, N. Llobart</i>	
A MAXIMUM-LIKELIHOOD ANALYSIS FRAMEWORK FOR TERAHERTZ TIME-DOMAIN SPECTROSCOPY.....	629
<i>J. Steven Dodge, Laleh Mohtashemi, Paul Westlund, Payam Mousavi, Derek G. Sahota</i>	
TOWARDS HIGH QUALITY 3D PRINTED THZ DEVICES WITH CYCLIC OLEFIN POLYMER.....	630
<i>E. Mavrana, J. Graf, E. Hack, P. Zolliker</i>	
DEVELOPMENT OF A CARBON-MONOXIDE ROTATIONAL-TRANSITION-STABILIZED 3.1THZ QUANTUM CASCADE LASER FOR TERAHERTZ FREQUENCY STANDARD.....	632
<i>S. Nagano, M. Kumagai, H. Ito, Y. Hanado, T. Ido</i>	
AN ADAM OPTIMIZATION FOR WATER-VAPOR EFFECT REMOVAL IN THZ-TDS DATA .....	634
<i>Chayut Thanapirom, Chia Jia Yi, Napat Cota, Rungroj Jintamethasawat, Woraprach Kusolthossakul, Kiattiwut Prasertsuk</i>	
IN-LINE THZ MULTIPLEXER FABRICATED BY ADDITIVE MANUFACTURING.....	636
<i>A. I. Hernandez-Serrano, Simon J. Leigh, Emma Pickwell-Macpherson</i>	
GUIDED-MODE FILTERS FOR TERAHERTZ FREQUENCIES FABRICATED BY 3D PRINTING .....	638
<i>M. Ortiz Martinez, A. I. Hernandez Serrano, E. Castro Camus</i>	
TERAHERTZ BAND INTERCONNECT ARCHITECTURE FOR FUTURE CHIP-TO-CHIP WIRELESS COMMUNICATION.....	639
<i>Taieb Elkarkraoui, Mohammad-Reza Nezhad-Ahmadi, Safieddin Safavi-Naeini</i>	
WIDE TUNABLE SUB-THZ GYROTRON WITH SHORTENED CAVITY AND INCREASED CURRENT .....	641
<i>M. Yu. Glyavin, A. E. Fedotov, V. N. Manuilov, I. V. Zotova, R. M. Rozental, A. S. Sergeev, S. Mitsudo, T. Idehara</i>	
INFLUENCE OF AXIAL MISALIGNMENTS ON OPERATION REGIMES OF THZ-RANGE DOUBLE-BEAM GYROTRON.....	642
<i>M. Yu. Glyavin, I. V. Zotova, V. Yu. Zaslavsky, K. A. Leshcheva, V. N. Manuilov</i>	
EXPERIMENTAL INVESTIGATION OF MULTI-MODE DYNAMICS OF THZ-BAND PULSED MAGNETIC FIELD GYROTRON.....	643
<i>A. V. Palitsin, Yu. V. Rodin, A. G. Luchinin, A. N. Panin, A. V. Gromov, M. B. Goykhman, M. Yu. Glyavin</i>	

OBSERVATION OF MULTI-FREQUENCY OSCILLATIONS AT SECOND-HARMONICS WITH A TWO-CAVITY SUB-THZ GYROTRON .....	644
<i>Yuusuke Yamaguchi, Masato Watanabe, Ryota Mitsumoto, Taisei Ogura, Masafumi Fukunari, Yoshinori Tatematsu, Teruo Saito</i>	
PRELIMINARY COLD TEST OF A TERAHERTZ BAND SHEET BEAM TRAVELLING WAVE TUBE.....	646
<i>Guoxiang Shu, Junzhe Deng, Jujian Lin, Lijian Chen, Zhijie Huang, Xueliang Hua, Guo Liu, Wenlong He</i>	
EFFECT OF THE ELECTRON BEAM MISALIGNMENTS ON A CONTINUOUSLY FREQUENCY-TUNABLE GYROTRON .....	647
<i>Tao Song, Wei Wang, Diwei Liu, Shenggang Liu</i>	
THZ GAS DISCHARGE SUSTAINED BY POWERFUL GYROTRONS IN THE MIXTURES OF NOBLE GASES WITH NITROGEN .....	648
<i>Alexander A. Sidorov, Alexey P. Veselov, Sergey V. Razin, Tatyana V. Barmashova, Alexander V. Vodopyanov, Alexey G. Luchinin, Alexey A. Orlovskiy, Mikhail Yu. Glyavin</i>	
LINEAR STUDIES OF SPURIOUS BACKWARD-WAVE INSTABILITIES IN A DIELECTRIC-LOADED SMOOTH-WALL GYROTRON BEAM DUCTS .....	650
<i>J. Genoud, S. Alberti, J-Ph. Hogge</i>	
FORWARD-WAVE AND BACKWARD-WAVE OPERATION IN A 0.5-THZ FREQUENCY-TUNABLE GYROTRON .....	651
<i>Jie Huang, Wei Wang, Tao Song, Diwei Liu</i>	
DEVELOPMENT OF A 28 GHZ 50KW CW GYROTRON FOR ECRH APPLICATION .....	652
<i>Linlin Hu, Guowu Ma, Dimin Sun, Tingting Zhuo, Qili Huang, Yi Jiang, Hongbin Chen, Fanbao Meng</i>	
A VECTOR METHOD FOR THE SYNTHESIS OF HYBRID-TYPE LAUNCHER .....	653
<i>Qiang Chen, Wei Wang, Tao Song, Diwei Liu</i>	
HIGH GRADIENT AND RF BREAKDOWN MEASUREMENTS IN A MILLIMETER-WAVE ACCELERATING CAVITY .....	655
<i>Mohamed A. K. Othman, Julian Picard, Samuel Schaub, Valery A. Dolgashev, Samantha Lewis, Bruno Spataro, Richard J. Temkin, Sami Tantawi, Emilio A. Nanni</i>	
APPLICATION OF THE MILLIMETER-WAVE DISCHARGE INDUCED IN GAS TO A WIRELESS POWER TRANSFER SYSTEM.....	657
<i>Masafumi Fukunari, Ryota Kamiya, Ryotaro Okamoto, Yuusuke Yamaguchi, Yoshinori Tatematsu, Teruo Saito</i>	
A THERMAL-INSENSITIVE MULTI-LAYER METAMATERIAL ABSORBER .....	659
<i>Fuxian Zhong, Ningfeng Bai, Changsheng Shen, Xiaohan Sun, Pan Pan, Jun Cai, Jinjun Feng</i>	
INVESTIGATION OF PHONON POLARITON IN LEAD HALIDE PEROVSKITE FILM USING IN-SITU THZ SPECTROSCOPY .....	661
<i>H. S. Kim, Y. H. Ahn</i>	
CARBON NANOTUBES METASURFACE INTEGRATED WITH SILICON MICROFLUIDIC CHANNEL FOR THZ SENSOR .....	662
<i>Xiaoju Zhang, Yue Wang, Zijian Cui, Lisha Yue, Xiang Zhang, Chen Yang, Lei Hou</i>	

HIGHLY SENSITIVE DETECTION OF OPTICAL TUNABLE TERAHERTZ MULTI-BAND ABSORBER BASED ON ALL-DIELECTRIC GRATING .....	664
<i>Lisha Yue, Yue Wang, Zijian Cui, Xiaoju Zhang, Yongqiang Zhu, Chen Yang, Xinmei Wang, Suguo Chen</i>	
CHARACTERIZATION OF KAPTON, FEBO <sub>3</sub> AND SAPPHIRE IN THE THZ REGION .....	666
<i>E. Kueny, M. Lavancier, R. Peretti, R. Röhlberger, F. X. Kärtner, A.-L. Calendron</i>	
METAL 3D PRINTED D-BAND WAVEGUIDE TO SURFACE WAVE TRANSITION .....	668
<i>Suzanna Freer, Rafael Martínez, Dayan Pérez-Quintana, Miguel Beruete, Stephen M. Hanham, Moataz M. Attallah, M. Navarro-Cía</i>	
STUDY OF DEVELOPMENT OF THE ELECTROMAGNETIC WAVE ABSORBER IN TERAHERTZ REGION USING METALLIC MICROCOIL ARRAY .....	670
<i>M. Nakajima, Y. Masuda, Z. Ling, H. Kitahara, V. K. P. Mag-Usara, M. Haga, M. Ueshima</i>	
POWERFUL, OVER-MODED 0.14 THZ RADIATION SOURCE .....	672
<i>Amy J. Maclachlan, Craig W. Robertson, Adrian W. Cross, Kevin Ronald, Alan D. R. Phelps</i>	
STUDY OF THE TRANSMITTANCE PROPERTIES FOR THE STACKED METALLIC SUB-WAVELENGTH SLIT ARRAYS.....	674
<i>M. Nakajima, H. Kitahara, S. Watanabe, K. Sakaguchi, K. Akiyama, Y. Tokuda</i>	
BROADBAND ANTI-REFLECTION MOTH-EYE STRUCTURES REALIZED IN THE ABOVE 1 THZ REGION BY LASER PROCESSING.....	676
<i>Haruyuki Sakurai, Kuniaki Konishi, Mizuho Matoba, Ryota Takaku, Yuki Sakurai, Nobuhiko Katayama, Tomotake Matsumura, Junji Yumoto, Makoto Kuwata-Gonokami</i>	
RESONANCE PROPERTIES OF 3D-PRINTING HEXAGONAL STRUCTURES AT SUB-THZ FREQUENCY RANGE .....	678
<i>A. V. Badin, K. V. Simonova, G. E. Kuleshov, D. D. Teterina, G. E. Dunaevskii</i>	
WOOD – BASE MATERIAL FOR OPTICAL ELEMENTS FOR TERAHERTZ WAVES? .....	680
<i>Peter Zolliker, Elena Mavrona, Erwin Hack, Markus Rüggeberg, Zhihui Zeng, Gilberto Siqueira, Gustav Nyström</i>	
TRANSFER PRINTING INFRARED LIGHT SOURCES BASED ON THERMALLY EXCITED TAMM PLASMON POLARITONS.....	682
<i>K. Miura, T. Sugaya, T. Kawanago, Y. Kawano</i>	
ENHANCED COHERENT THZ RADIATION BY DUAL GROOVE GRATING SMITH-PURCELL EFFECT.....	684
<i>Xingxing Xu, Min Hu, Zhuocheng Zhang, Xiaoqiyan Zhang, Shaojie Chang, Feng Xiao, Sen Gon, Renbin Zhong, Shenggang Liu</i>	
3D APERTURE IN THZ BULL'S EYE STRUCTURE FOR SUB-WAVELENGTH RESOLUTION SENSING .....	686
<i>T. Sugaya, Y. Kawano</i>	
ON-CHIP SUPERCONDUCTING THZ METAMATERIAL BANDPASS FILTER.....	687
<i>S. Kalhor, M. Ghanaatshoar, K. Delfanazari</i>	



EFFECT OF DOPED BUFFER IN LOW-TEMPERATURE-GROWN GAAS TERAHERTZ PHOTOCONDUCTIVE ANTENNA EMITTERS AND DETECTORS.....	689
<i>Elizabeth Ann Prieto, Alexander De Los Reyes, Victor De Andres Vistro, Neil Irvin Cabello, Maria Angela Faustino, John Paul Ferrolino, John Daniel Vasquez, Hannah Bardolaza, Jessica Pauline Afalla, Valynn Katrine Mag-Usara, Hideaki Kitahara, Masahiko Tani, Armando Somintac, Arnel Salvador, Elmer Estacio</i>	
SUPERCONDUCTING NBN HOT ELECTRON BOLOMETER WITH AN NB <sub>5</sub> N <sub>6</sub> BUFFER LAYER.....	691
<i>Daogang Sun, Hongkai Shi, Runfeng Su, Tao Xu, Xuecou Tu, Xiaoqing Jia, Lin Kang, Jian Chen, Peiheng Wu</i>	
CARRIER LIFETIME OF AU-HYPERDOPED GE USING TERAHERTZ SPECTROSCOPY .....	693
<i>S. Senali Dissanayake, Naheed Ferdous, Hemi Gandhi, Eric Mazur, Elif Ertekin, Meng-Ju Sher</i>	
CARBON NANOTUBE-THIN FILM TRANSISTOR MODEL FOR TERAHERTZ DETECTORS .....	694
<i>Junsung Park, Xueqing Liu, Trond Ytterdal, Michael Shur</i>	
PLANAR SLOT ANTENNAS DESIGNED FOR THZ DETECTORS ARRAY IN FLIP CHIP PACKAGING .....	695
<i>Xuecou Tu, Peng Xiao, Shuyu Zhou, Yichen Zhang, Xiaoqing Jia, Lin Kang, Jian Chen, Peiheng Wu</i>	
STABILIZATION OF A LASING FREQUENCY OF A THZ-QCL IN FREE RUNNING FOR LONG-TERM PHASE-LOCKING.....	696
<i>Yoshihisa Irimajiri</i>	
AN ANTENNA-COUPLED DUAL-GATED ELECTRON CHANNEL AS DIRECT DETECTOR OF 2 THZ RADIATION .....	698
<i>Wladislaw Michailow, Joanna Waldie, Peter Spencer, Nikita Almond, Stephen Kindness, Yuqing Wu, Binbin Wei, Robert Wallis, Thomas Mitchell, Riccardo Degl'Innocenti, Harvey Beere, David Ritchie</i>	
SPINTRONIC TERAHERTZ EMISSION REGULATED BY AU NANOPARTICLES .....	700
<i>Fengwei Guo, Chun Wang, Xinhou Chen, Chandan Pandey, Tianxiao Nie, Jungang Miao, Weisheng Zhao, Li Wang, Xiaojun Wu</i>	
HIGH PERFORMANCE GRAPHENE-BASED CW THZ PHOTOCONDUCTIVE DETECTOR .....	702
<i>Alaa Jabbar Jumaah, Shihab Al-Daffaie, Thomas Kusserow, Idelfonso Tafur Monroy</i>	
ALGAN/GAN HEMTS FOR THZ PLASMA WAVE DETECTION AND EMISSION.....	704
<i>M. Sakowicz, P. Sai, D. B. But, G. Cywinski, M. Dub, I. Kasalynas, P. Prystawko, S. Romyantsev, W. Knap</i>	
RESEARCH ON CHARACTERISTICS OF THZ PHOTOCONDUCTIVE ANTENNA DETECTION ARRAY .....	706
<i>Cheng Ma, Zhiquan Wang, Qian Sun, Hong Liu, Chengang Dong, Lei Yang, Lei Hou, Wei Shi</i>	
OCT TECHNIQUE FOR DISTANCE MEASUREMENT USING AN RTD TERAHERTZ OSCILLATOR .....	707
<i>Hiroki Konno, Adrian Dobroiu, Safumi Suzuki, Masahiro Asada, Hiroshi Ito</i>	
A REVISION OF THE THEORY OF THZ DETECTION BY MOS-FET IN THE LIGHT OF THE SELF-MIXING MODEL IN THE SUBSTRATE.....	709
<i>P. Piedimonte, F. Centurelli, F. Palma</i>	

FLIP-CHIP INTERCONNECTION BETWEEN NB5N6 TERAHERTZ ARRAY DETECTORS AND READOUT CIRCUITS .....	711
<i>Zhenjie Li, Xinle Guo, Jin Feng Zhang, Danfeng Pan, Xuecou Tu, Xiaoqing Jia, Lin Kang, Jian Chen, Peiheng Wu</i>	
CURRENT-DRIVEN TERAFET DETECTOR .....	713
<i>Xueqing Liu, Trond Ytterdal, Michael Shur</i>	
THZ TECHNIQUE IN CONFIRMING PHARMACOLOGICAL RULES OF THUMB .....	715
<i>Edward F. Plinski, Stanislaw Plinska</i>	
BIG DATA ANALYSIS OF ENERGY LANDSCAPE DYNAMICAL SAMPLING USING ELASTIC NETWORK MODEL EIGENVECTORS.....	717
<i>Jeremy Kazimer, Tod Romo, Alan Grossfield, Andrea Markelz</i>	
THZ SPECTROSCOPY AS NON-DESTRUCTIVE ALTERNATIVE TO SECONDARY ION MASS SPECTROSCOPY .....	718
<i>Anup Kumar Sahoo, Wei-Chen Au, Chan-Shan Yang, Chia-Ming Mai, Ci-Ling Pan</i>	
POTENTIAL OF THZ-TDS FOR CRYSTALLINITY STATE INSPECTION OF ACTIVE PHARMACEUTICAL INGREDIENTS IN SMARTFILMS® .....	720
<i>Jan Ornik, Daniel Knoth, Cornelia M. Keck, Martin Koch</i>	
BOSON PEAK ANALYSIS OF GLUCOSE POLYMERS VIA TERAHERTZ TIME-DOMAIN SPECTROSCOPY.....	722
<i>Junlan Zhong, Shin Nakagawa, Tatsuya Mori, Wakana Terao, Takanari Kashiwagi, Yasuhiro Fujii, Midori Yamashiro, Kazuo Kadowaki</i>	
BOSON PEAK AND FRACTON OF POLYMETHYL METHACRYLATE DETECTED BY TERAHERTZ TIME-DOMAIN AND LOW-FREQUENCY RAMAN SPECTROSCOPIES.....	724
<i>Shin Nakagawa, Tatsuya Mori, Yasuhiro Fujii, Suguru Kitani, Akitoshi Koreeda, Hitoshi Kawaji, Jae-Hyeon Ko, Seiji Kojima</i>	
EXPLICIT CONSIDERATION OF VIBRATIONAL ANHARMONICITY IN MOLECULAR CRYSTALS WITH QUANTUM-MECHANICAL SIMULATIONS .....	725
<i>R. G. Schireman, M. T. Ruagiero</i>	
ULTRA-SENSITIVE BIOLOGICAL THZ METAMATERIAL SENSOR .....	727
<i>Anchen Ma, Renbin Zhong, Zhenhua Wu, Yilin Lv, Chen Han, Yiqing Wang, Long Yang, Zekun Liang, Zheng Fang, Min Hu, Diwei Liu, Shenggang Liu</i>	
WAVELET SHRINKAGE FOR ENHANCED CHEMICAL RECOGNITION IN THE ROUGH SURFACE DIFFUSED TERAHERTZ SPECTRA .....	729
<i>Mahmoud E. Khani, M. Hassan Arbab</i>	
STUDYING PHARMACEUTICAL TABLETS MIXING PROCESS INSIDE A PERFORATED PAN-COATER USING IN-LINE TERAHERTZ SENSING .....	731
<i>Xiaoran Li, Prince Bawuah, Bryan M. Williams, J. Axel Zeitler, Hungyen Lin</i>	
UNIQUE TERAHERTZ FEATURES OF FENTANYL AND ITS ANALOGS REVEALED VIA HIGH PERFORMANCE COMPUTATIONS .....	733
<i>Chun-Hung Wang, Anthony C. Terracciano, Mengyu Xu, Artem E. Masunov, Subith S. Vasu</i>	
DEVELOPMENT OF A BROADBAND MULTIDIMENSIONAL THZ SPECTROMETER.....	735
<i>A. Dunn, D. R. Bacon, T. B. Gill, J. R. Freeman, L. H. Li, P. Dean, E. H. Linfield, A. G. Davies, A. D. Burnett</i>	

VIBRATIONAL SPECTROSCOPIC INVESTIGATION ON PHOTOCATALYTIC REACTION OF TITANIUM DIOXIDE (IV) AGAINST A SYNTHETIC ANTIBACTERIAL AGENT USING THZ AND RAMAN SPECTROSCOPY.....	737
<i>Tomoaki Sakamoto, Tetsuo Sasaki</i>	
HYDRATION DYNAMICS IN DEOXYRIBONUCLEIC ACID USING AN EXTENDED MHZ-THZ SPECTROSCOPY .....	739
<i>Abhishek K Singh, Chengyuan Wen, Nguyen Q Vinh</i>	
TERAHERTZ SPECTROSCOPIC INVESTIGATION INTO COCRYSTAL FORMATION PROCESS WITHIN LAMIVUDINE AND THEOPHYLLINE .....	741
<i>Shunji Jin, Yong Du, Zhi Hong</i>	
NUMERICAL STUDY ON INJECTION LOCKING IN RESONANT TUNNELING DIODE OSCILLATORS .....	742
<i>Hiroaki Yasuda, Norihiko Sekine, Tomoki Hiraoka, Takashi Arikawa, Koichiro Tanaka, Iwao Hosako</i>	
IMPEDANCE MATCHING METHOD IN HIGH-POWER RTD THZ OSCILLATOR INTEGRATED WITH RECTANGULAR-CAVITY RESONATOR.....	744
<i>Feifan Han, Hidenari Fujikata, Kazunori Kobayashi, Hiroki Tanaka, Safumi Suzuki, Masahiro Asada</i>	
ANALYSIS OF OSCILLATION CHARACTERISTICS FOR RESONANT-TUNNELING DIODE CAVITY-TYPE TERAHERTZ OSCILLATOR.....	746
<i>Mikhail Bezhko, Safumi Suzuki, Masahiro Asada</i>	
CMOS INTEGRATED SYSTEM FOR TERAHERTZ DETECTION.....	748
<i>R. Giusto, F. Centurelli, F. Palma</i>	
FABRICATION AND CHARACTERIZATION OF HIGH POWER GALLIUM NITRIDE BASED TERAHERTZ GUNN DIODES.....	750
<i>Ahid S. Hajo, Oktay Yilmazoglu, Armin Dadgar, Franko Küppers, Thomas Kusserow</i>	
DEVELOPMENT OF HIGH-POWER SUB-THZ TRAVELING-WAVE TUBES WITH MULTIPLE SHEET ELECTRON BEAMS .....	752
<i>Nikita M. Ryskin, Gennadiy V. Torgashov, Roman A. Torgashov, Andrey G. Rozhnev, Vladimir N. Titov, Andrey V. Starodubov, Andrey E. Ploskih, Dmitry N. Zolotykh, Valeriy V. Erueyanov, Igor A. Navotskiy</i>	
TERAHERTZ EMISSION IN AN ASYMMETRIC DUAL-GRATING-GATE HIGH-ELECTRON MOBILITY TRANSISTOR PLASMONIC PHOTOMIXER UNDER DC CURRENT FLOW .....	754
<i>Tomotaka Hosotani, Akira Satou, Taiichi Otsuji</i>	
P-DIAMOND PLASMONIC TERAFET DETECTOR .....	756
<i>Yuhui Zhang, Michael S. Shur</i>	
SEMICONDUCTOR NANOSTRUCTURES FOR SPECTRAL FILTERING.....	758
<i>Clément Maës, Grégory Vincent, Fernando González-Posada Flores, Laurent Cerutti, Riad Haïdar, Thierry Taliercio</i>	
A 0.2-THZ FREQUENCY-SELECTIVE CROSS-SLOT METAMATERIAL ABSORBER .....	759
<i>A. D. Squires, X. Gao, S. K. H. Lam, T. Zhang, Z. J. Han, J. Du</i>	
CHARACTERIZATION OF THZ-INDUCED BIAS VOLTAGE MODULATION IN AN STM .....	760
<i>Yang Luo, Jesus A. M. Calzada, Gong Chen, Peter H. Nguyen, Vedran Jelic, Yu-Jui Ray Liu, Daniel J. Mildenberger, Howe R. J. Simpson, Frank A. Hegmann</i>	

INVESTIGATION OF TWO-DIMENSIONAL PLASMONS IN GRATING-GATED ALGAN/GAN HETEROSTRUCTURES WITH TERAHERTZ TIME DOMAIN SPECTROMETER.....	762
<i>D. Pashnev, T. Kaplas, V. Korotyeyev, V. Janonis, I. Grigelionis, A. Urbanowicz, J. Jorudas, S. Indrišūnas, N. Alexeeva, I. Kašalynas</i>	
STUDY OF HARMONIC GENERATION FROM INSB EXCITED BY TERAHERTZ WAVE PULSES WITH FEMTOSECOND PULSE LASER EXCITATION .....	763
<i>M. Nakajima, S. Ueda, K. Kato, T. N. K. Phan, T. Shimizu, M. Tani, M. Yoshimura</i>	
STUDY OF THE MEASUREMENT FOR ELECTRON BUNCHES AND THE IRRADIATION EFFECT BY FEMTOSECOND ELECTRO-OPTIC SAMPLING.....	765
<i>M. Nakajima, M. Ota, K. Kan, Y. Arikawa, T. Shimizu, S. Segawa, Y. Sakawa</i>	
EXTRACTION OF CONSTITUTIVE EFFECTIVE PARAMETERS FOR REFLECTIVE METASURFACES USING SIMPLEX S-PARAMETERS.....	767
<i>Feng-Yuan Han, Yi-Dong Wang, Li-Zheng Yin, Di Wang, Pu-Kun Liu</i>	
SWITCHING THZ RESONANCES BY MECHANICAL BENDING.....	768
<i>Jiyeah Rhie, Young-Mi Bahk, Sung Ju Hong, Dukhyung Lee, Dai-Sik Kim</i>	
DUAL-FIELD SUPERFOCUSING BASED ON NEAR-FIELD METASURFACES.....	769
<i>Feng-Yuan Han, Li-Zheng Yin, Yi-Dong Wang, Pu-Kun Liu</i>	
INCREASING THE SENSITIVITY OF TERAHERTZ METAMATERIALS FOR DIELECTRIC SENSING BY SUBSTRATE ETCHING .....	770
<i>S. J. Park, K. Meng, A. D. Burnett, T. Gill, C. D. Wood, M. Rosamond, L. H. Li, L. Chen, D. R. Bacon, J. R. Freeman, P. Dean, Y. H. Ahn, E. H. Linfield, A. G. Davies, J. E. Cunningham</i>	
DUAL-BAND CONVERSION BETWEEN POLARIZATION STATES BASED ON METASURFACE WITH BROADBAND PERFORMANCE.....	771
<i>Ayesha Kosar Fahad, Cunjun Ruan, Tanveer Ul Haq, Shahid Ullah</i>	
INTERACTION BETWEEN EIT-LIKE METAMATERIALS AND THZ WAVE ABSORB OF ATMOSPHERE .....	772
<i>Kanglong Chen, Cunjun Ruan</i>	
EFFECT OF SUBSTRATE MATERIAL ON LT-GAAS CARRIER DYNAMICS AT 800 NM.....	773
<i>Jessica Afalla, Elizabeth Ann Prieto, Karl Cedric Gonzales, Gerald Catindig, Valynn Katrine Mag-Usara, Muneaki Hase, Armando Somintac, Arnel Salvador, Elmer Estacio, Masahiko Tani</i>	
RESEARCH ON ULTRA-WIDEBAND TERAHERTZ ABSORBER WITH GRAPHENE LOADED DIELECTRIC HEMI-ELLIPSOID.....	775
<i>Long Yang, Renbin Zhong, Zhenhua Wu, Yilin Lv, Chen Han, Yiqing Wang, Anchen Ma, Zekun Liang, Zheng Fang, Shenggang Liu</i>	
IMPACT OF OPTICAL ABSORPTION FOR THZ RADIATION IN GASB/INAS HETEROSTRUCTURES.....	776
<i>R. Ohashi, D. Shimada, M. Koyama, T. Maemoto, S. Sasa, F. Murakami, H. Murakami, M. Tonouchi</i>	
THE STRUCTURE OF AZIMUTHAL EIGENMODES OF THE OPTICAL-TERAHERTZ BIPHOTON FIELD.....	778
<i>Pavel A. Prudkovskii, Lev S. Dvernik</i>	

LOW-LOSS THZ SOMMERFELD MODE ON A SUPERCONDUCTING NIOBIUM WIRE FOR MILLIMETER-WAVE INTERCONNECTS .....	780
<i>B. Kuchhal, E. Snively, K. Multani, H. Stokowski, D. Das, A. Safavi-Naeni, P. Welander, E. Nanni</i>	
BROADBAND THZ WAVE GENERATION FROM FLOWING LIQUID NITROGEN .....	782
<i>E Yiwen, Yuqi Cao, Fang Ling, Alexander P. Shkurinov, Yiming Zhu, X.-C. Zhang</i>	
HIGHLY EFFICIENT TERAHERTZ EMISSION FROM INAS NANOSTRUCTURES.....	784
<i>Zhenzhe Ma, Dong Pan, Xinhou Chen, Gaoshuai Wei, Fengwei Guo, Jungang Miao, Li Wang, Jianhua Zhao, Xiaojun Wu</i>	
SIDE-ILLUMINATED FULLY BALLISTIC P-I-N DIODE-BASED PHOTOMIXER AT 1550 NM .....	786
<i>Mario Méndez Aller, Peng Lu, Vitaly Rymanov, Andreas Stöhr, Sascha Preu</i>	
ANALYTICAL MODELING OF TERAHERTZ TIME-DOMAIN SPECTROSCOPY WITH MONOLITHIC MODE-LOCKED LASER DIODES .....	788
<i>Kevin Kolpatzeck, Xuan Liu, Kai-Henning Tybussek, Lars Häring, Marlene Zander, Wolfgang Rehbein, Martin Moehrle, Andreas Czyllwik, Jan C. Balzer</i>	
VERIFICATION OF UNEVALUATED NONLINEAR OPTICAL PROCESS OF DAST CRYSTAL USING THE PRISM COUPLED CHERENKOV PHASE MATCHING METHOD .....	790
<i>Takayuki Kamei, Kei Takeya, Kodo Kawase, Hirohisa Uchida</i>	
PONDEROMOTIVE FORCE ANALYSIS OF TERAHERTZ GENERATION IN LIQUID WATER.....	792
<i>Haoyang Wang, Tao Shen, Zezhong Tian</i>	
ACTIVE ELEMENTS FOR SUB-TERAHERTZ NANOSECOND GIGAWATT COMPRESSORS.....	794
<i>Maxim L. Kulygin, V. I. Belousov, A. V. Chirkov, S. E. Filchenkov, I. A. Litovsky</i>	
560 GHZ TERAHERTZ WAVE GENERATION USING A SOLITON COMB .....	796
<i>Yu Tokizane, Naoya Kuse, Kenji Nishimoto, Kaoru Minoshima, Takeshi Yasui</i>	
BROADBAND SPECTRO-SPATIAL CHARACTERIZATION OF CW TERAHERTZ PHOTOEMITTER USING CMOS CAMERA .....	798
<i>Vishal S. Jagtap, Robin Zatta, Simon Nellen, Bjoern Globisch, Janusz Grzyb, Ullrich R. Pfeiffer</i>	
DEVELOPMENT OF TERAHERTZ OPTICAL SOURCES FOR AN EXCITATION WAVELENGTH OF 1.56 $\mu\text{M}$ .....	800
<i>Daichi Shimada, Ryota Ohashi, Masatoshi Koyama, Toshihiko Maemoto, Shigehiko Sasa, Kosuke Okada, Hironaru Murakami, Masayoshi Tonouchi</i>	
CONTINUOUSLY TUNABLE TERAHERTZ-WAVE PARAMETRIC SOURCE BASED ON SPECTRAL DRILL CAVITY .....	802
<i>Shin'Ichiro Hayashi, Yoshiharu Urata, Seigo Ohno, Katsuhiko Miyamoto, Norihiko Sekine</i>	
HIGH SPEED MID-IR QUANTUM CASCADE DETECTOR AT ROOM TEMPERATURE .....	804
<i>G. Quinchar, C. Mismar, V. Trinité, A. Evirgen, A. Larrue, M. Hakl, J-F Lampin, E. Peytavit, S. Barbieri, A. Delga</i>	
EVALUATING THE EFFECTS OF DIFFERENT SKIN PRODUCTS ON THE IN VIVO THZ RESPONSE OF SKIN.....	805
<i>Hannah Lindley-Hatcher, A. I. Hernandez-Serrano, Emily Hennighan, Juan Cebrian, Laurent Blasco, Emma Pickwell-Macpherson</i>	

MEDICAL APPLICATIONS OF THERMOGRAPHIC TECHNOLOGIES .....	807
<i>Valery Ya. Belenky, Sergei A. Kuznetsov, Victor N. Fedorinin</i>	
CONTINUOUS WAVE SUB-TERAHERTZ LENSLESS HOLOGRAPHIC REFLECTIVE IMAGING.....	808
<i>Andei Gorodetsky, Suzanna Freer, Miguel Navarro-Cía</i>	
COMBINED THZ AND OCT CHARACTERIZATION OF BIOLOGICALLY RELEVANT TISSUE PHANTOMS.....	809
<i>Anthony J. Fitzgerald, Stephy V. K. Jayasree, Barry Cense, Vincent P. Wallace</i>	
CELL CULTURE CONFLUENCY AS A POTENTIAL FACTOR IN BIOLOGICAL EFFECTS OF MILLIMETRE WAVE RADIATION IN IN VITRO EXPERIMENTS.....	810
<i>Sergii Romanenko, Anabel Sorolla, Vincent P. Wallace</i>	
THE HELICAL STRUCTURE OF SWEAT DUCTS DOES NOT INFLUENCE FAR FIELD RADIATION IN COMPUTER SIMULATIONS AT 0.45 THZ .....	812
<i>Zoltan Vilagosh, Alireza Lajevardipour, Andrew Wood</i>	
DOUBLY RESONANT INTERNALLY HETERODYNE PHASE RESOLVED VIBRATIONAL SUM FREQUENCY GENERATION SPECTROSCOPY.....	813
<i>Ty Santiago, Jerry Cartagena Brigantty, Luis Velarde</i>	
PROSPECTS FOR THE USE OF SILICON TERAHERTZ SOURCES FOR THE TREATMENT OF PULMONARY PATHOLOGIES AND AFFECTIONS CAUSED BY COVID-19 .....	814
<i>Nikolai T. Bagraev, Leonid E. Klyachkin, Anna M. Malyarenko, Boris A. Novikov, Alexandra P. Presnukhina, Alexey S. Reukov, Konstantin B. Taranets, Vyacheslav S. Khromov</i>	
PENETRATING TERAHERTZ HYPERSPECTRAL UNMIXING VIA LÖWNER-JOHN ELLIPSOID (THZ HU-LJE): AN UNSUPERVISED ALGORITHM.....	816
<i>Yi-Chun Hung, Chia-Hsiang Lin, Feng-Yu Wang, Shang-Hua Yang</i>	
HIGH-RISK FACTOR DETECTION OF CORONARY ARTERY DISEASE BY TERAHERTZ SPECTROSCOPY.....	818
<i>X. Wu, Y. Peng, Y. Dai, L. Lu, Y. Zhu</i>	
SKIN SURFACE FEATURE INFLUENCE ON TERAHERTZ IN VIVO MEASUREMENTS .....	819
<i>Xuequan Chen, Qiushuo Sun, Jiarui Wang, Emma Pickwell-Macpherson</i>	
THZ FREQUENCY QUANTIFICATION OF WATER GRADIENTS IN DRYING PAPER.....	821
<i>Irina Nefedova, Qiushuo Sun, Anis Moradikouchi, Mariangela Baggio, Aleksii Tamminen, Juha Ala-Laurinaho, Emma Macpherson, Helena Rodilla, Jan Stake, Zachary Taylor</i>	
TERAHERTZ SPECTROSCOPY OF BLOOD PLASMA AS A PROMISING METHOD FOR DIAGNOSING OF THYROID CANCER.....	823
<i>M. Konnikova, O. Cherkasova, M. Nazarov, D. Vrazhnov, Y. Kistenev, A. Shkurinov</i>	
FREQUENCY SHIFTABLE LIQUID CRYSTAL ANTENNAE WITH DIFFERENT FEEDING TECHNIQUES.....	825
<i>Xiaobing Shang, Fang Chen, Zihao Chen, Herbert De Smet, Hongqiang Li, Changjun Jiang</i>	
GENETIC ALGORITHMS FOR THE DESIGN OF THZ COMPONENTS .....	827
<i>Vanessa J. Fenlon, Michael Cooke, Andrew Gallant, Claudio Balocco</i>	
AN ELECTROPLATED 3D PRINTED WAFFLE TYPE WAVEGUIDE FOR KU-BAND APPLICATION.....	829
<i>Toru Hara, Yoshihiro Hosokawa, Tadao Matsunaga, Sang-Seok Lee</i>	

MODULATED PHASE CONTROLLED THZ RADIATION FROM SILICON NANOSANDWICHES .....	831
<i>Pavel A. Golovin, Nikolai I. Rul', Leonid E. Klyachkin, Anna M. Malyarenko, Nikolay T. Bagraev</i>	
APPLICATION OF DEVICE ELECTRO-THERMAL MODELS TO THE DESIGN OF MILLIMETER-WAVE FREQUENCY MULTIPLIERS.....	833
<i>Carlos G. Pérez-Moreno, Jesús Grajal</i>	
A CMOS PLASMON DETECTOR WITH DIFFERENT BODY-BIAS VOLTAGES.....	835
<i>Hyo-Jin Lee, Jong-Ryul Yang</i>	
REFLECTION ANGLE DEPENDENCY EVALUATIONS OF TYPICAL FOREIGN OBJECT DEBRIS ON AIRPORT RUNWAY USING OPTICALLY-CONNECTED 96 GHZ MILLIMETER-WAVE RADAR SYSTEM.....	837
<i>Shunichi Futatsumori, Naruto Yonemoto, Nobuhiko Shibagaki, Yousuke Sato, Kenichi Kashima</i>	
MILLIMETER-WAVE WAVEGUIDE DIPLEXER.....	839
<i>Bahaa Al-Juboori</i>	
FRONT END FOR D-BAND HIGH DATA RATE POINT TO POINT LINKS .....	841
<i>Rupa Basu, Jeevan N. Rao, Rosa Letizia, Qiang Ni, Edward Wasige, Abdullah Al-Khalidi, Jue Wang, Claudio Paoloni</i>	
ENGINEERING THE CAVITY MODES AND POLARIZATION IN INTEGRATED SUPERCONDUCTING COHERENT TERAHERTZ EMITTERS.....	843
<i>Y. Xiong, T. Kashiwagi, R. A. Klemm, K. Kadowaki, K. Delfanazari</i>	
WIDE BANDWIDTH MILLIMETER-WAVE SYSTEM-ON-CHIP DEVELOPMENT AND APPLICATIONS.....	845
<i>Yilun Zhu, Ying Chen, Jo-Han Yu, Guanying Yu, Xianzi Liu, Calvin W. Domier, Jon Dannenberg, N. C. Luhmann</i>	
TERAHERTZ DUAL-FED RELATIVISTIC ELECTRON BUNCH COMPRESSION.....	847
<i>Mohamed A. K. Othman, Annika E. Gabriel, Emma C. Snively, Michael E. Kozina, Xiaozhe Shen, Fuhao Ji, Samantha Lewis, Praful Vasireddy, Stephen Weathersby, X. J. Wang, Matthias C. Hoffmann, Emilio A. Nanni</i>	
FREQUENCY MEASUREMENTS OF A COMPLEX-CAVITY GYROTRON FOR 400 GHZ SECOND-HARMONIC OSCILLATION.....	849
<i>Masafumi Fukunari, Taisei Ozura, Masato Watanabe, Yuusuke Yamaguchi, Yoshinori Tatematsu, Teruo Saito, Maria M. Melnikova, Andrey G. Rozhnev, Nikita M. Ryskin</i>	
OBSERVATION OF HARMONIC GENERATION FROM NARROW-GAP SEMICONDUCTOR SURFACES EXCITED BY TERAHERTZ FREE ELECTRON LASER .....	851
<i>T. Shimizu, T. N. K. Phan, K. Kan, H. Kitahara, G. Isoyama, M. Yoshimura, M. Nakajima</i>	
DEVELOPMENT OF A HIGH POWER GYROTRON PROTOTYPE FOR GW-CLASS MICROWAVE BEAM SOURCE STUDY.....	853
<i>K. Tabata, T. Kariya, Y. Oda, R. Minami, M. Fukunari, R. Ikeda, K. Hayashi, T. Taniguchi, Y. Harada, T. Takeuchi, T. Imai, K. Sakamoto, K. Komurasaki, Y. Tatematsu, Y. Yamaguchi, K. Kajiwaru, K. Takahashi</i>	
COMPLEX PERMITTIVITY EXTRACTION OF VACUUM WINDOWS FOR A COMPACT FEL-THZ SOURCE .....	855
<i>Jing Ding, Zhengya Yin, Huiting Xia, Lei Cao</i>	

NONLINEAR THZ SPECTROSCOPY USER FACILITY AT ELI-ALPS .....	857
<i>A. Gupta, V. Gupta, A. Sharma, B. Monoszlai, P. S. Nugraha, Gy. Polónyi, G. Krizsán, Á. Burián, Sz. Turnár, J. Hebling, G. Almási, J. A. Fülöp</i>	
DEVELOPMENTS OF MILLIMETER AND SUB-MILLIMETER WAVE BACKSCATTERING SYSTEMS FOR FUSION PLASMA TURBULENCE DIAGNOSTICS .....	859
<i>T. Tokuzawa, K. Tanaka, K. Y. Watanabe, S. Kubo, A. Ejiri, S. Inagaki, J. Kohagura, K. Yamamoto, T. Saito, H. Idei, R. Imazawa, N. Oyama</i>	
SIMULATIONS OF A MULTISTAGE DEPRESSED COLLECTOR FOR THE DEMO PROTOTYPE GYROTRON .....	860
<i>O. Louksha, P. Trofimov, V. Manuilov, M. Glyavin</i>	
IMPROVEMENT IN SENSITIVITY OF FT-ESR MEASUREMENTS BY USING A GYROTRON AS HIGH-POWER MILLIMETER WAVE SOURCE.....	862
<i>S. Mitsudo, K. Dono, K. Hayashi, Y. Ishikawa, Y. Fujii</i>	
SELF-CONSISTENT SIMULATION OF THE SECOND-HARMONIC 0.4-THZ GYROTRON WITH DELAYED REFLECTION .....	863
<i>Maria M. Melnikova, Arina A. Rodina, Andrey G. Rozhnev, Nikita M. Ryskin</i>	
INVESTIGATION ON DUAL FREQUENCY OPERATION IN DOUBLE CONFOCAL GYROTRON.....	865
<i>Jiayi Zhang, Wenjie Fu, Xiaotong Guan, Yang Yan</i>	
NOVEL MEANDER LINE SLOW WAVE STRUCTURE FOR W-BAND TWT.....	867
<i>Juan M. Socuéllamos, Rosa Letizia, Roberto Dionisio, Claudio Paoloni</i>	
THE NONLINEAR OPTICAL RESPONSE OF THE $\alpha$ -T <sub>3</sub> LATTICE IN THE TERAHERTZ REGIME.....	869
<i>Jack Zuber, Chao Zhang</i>	
OPTICALLY DRIVEN TERAHERTZ WAVE POLARIZATION CONTROL BY SINGLE-WALL CARBON NANOTUBE THIN FILM.....	870
<i>Anatoly Kvitsinskiy, Petr Demchenko, Mikhail Novoselov, Ilya Anoshkin, Kirill Bogdanov, Alexander Baranov, Mikhail Khodzitsky</i>	
MONTE CARLO SIMULATIONS OF ULTRAFAST NONLINEAR THZ OPTICAL PROPERTIES IN N-DOPED IN <sub>0.53</sub> GA <sub>0.47</sub> AS .....	872
<i>Jorge L. Regalado-De La Rosa, Ayesheshim K. Ayesheshim, Frank A. Hegmann, Enrique Castro-Camus</i>	
ULTRAFAST CARRIER DYNAMICS OF CDS NANOWIRES WRAPPED IN C <sub>3</sub> N <sub>5</sub> NANOSHEETS .....	873
<i>C. E. Jensen, K. M. Alam, A. Palmgren, D. N. Porschke, N. Amer, K. Shankar, F. A. Hegmann</i>	
EFFICIENT BROADBAND TERAHERTZ GENERATION IN BNA ORGANIC CRYSTALS AT YTTERBIUM LASER WAVELENGTH .....	875
<i>Claudia Gollner, Hovan Lee, Xi Jiaqi, Cedric Weber, Elisa Sollinger, Vinzenz Stummer, Andrius Baltuska, Yan Zhang, Andrius Pugzlys, Mostafa Shalaby</i>	
INVESTIGATION OF TERAHERTZ PROPERTIES IN GRAPHENE RIBBONS .....	877
<i>Amine El Moutaouakil, Hirokazu Fukidome, Taiichi Otsuji</i>	
MID-IR TO NEAR-IR OPTICAL PROPERTIES OF SUPERCONDUCTING MISFIT COMPOUND (PBSE) <sub>1+<math>\delta</math></sub> (NBSE <sub>2</sub> ) <sub>N</sub> .....	879
<i>Paul Respicio, Maureen Reedyk</i>	



SPINTRONIC GD/PT THZ EMITTER SYSTEMS.....	881
<i>Robert Schneider, Mario Fix, Jannis Bensmann, Steffen Michaelis De Vasconcellos, Manfred Albrecht, Rudolf Bratschitsch</i>	
ENHANCEMENT OF INDIUM TIN OXIDE NANO-SCALE FILMS FOR TERAHERTZ DEVICE APPLICATIONS TREATED BY RAPID THERMAL ANNEALING .....	882
<i>Anup Kumar Sahoo, Chia-Ming Mai, Ci-Ling Pan</i>	
BROADBAND NONLINEAR SPECTROSCOPY OF HYDROGEN-LIKE LEVELS IN GE:AS .....	884
<i>T. B. Gill, D. R. Bacon, P. Dean, A. D. Burnett, A. Dunn, E. H. Linfield, A. G. Davies, J. R. Freeman</i>	
ENERGY SPLITTING BETWEEN 2S AND 2P EXCITONS IN HBN-ENCAPSULATED MONOLAYER WSe <sub>2</sub> .....	885
<i>Satoshi Kusaba, Yoshiki Katagiri, Kenji Watanabe, Takashi Taniguchi, Kazuhiro Yanagi, Nobuko Naka, Koichiro Tanaka</i>	
ANISOTROPIC CHARGE CONDUCTION IN ORIENTED DONOR-ACCEPTOR POLYMER FILMS AND LIQUID DISPERSIONS MEASURED BY TIME-RESOLVED TERAHERTZ SPECTROSCOPY.....	886
<i>Timothy J. Magnanelli, Sebastian Engmann, Jared K. Wahlstrand, John C. Stephenson, Lee J. Richter, Edwin J. Heilweil</i>	
ANALYSIS OF THE COUPLING BETWEEN SURFACE PLASMON POLARITON MODE AND DIPOLE MODE AT TERAHERTZ METASURFACE ABSORBER.....	887
<i>Yue Wang, Zijian Cui, Lisha Yue, Xiaojun Zhang, Yongqiang Zhu, Xiang Zhang, Zhenyu Yao, Dacheng Zhang, Cheng Ma</i>	
ULTRAFAST, BROADBAND AND TUNABLE THZ REFLECTOR BASED ON HIGH RESISTIVITY SILICON .....	889
<i>S. Kumar, A. Nivedan, A. Singh, M. Tondusson, J. Degert, E. Abraham, V. Freysz, E. Freysz</i>	
ENHANCED TRANSIENT THZ RESPONSE IN TMDC HETEROSTRUCTURES.....	890
<i>A. Singh, A. Nivedan, S. Kumar, M. Tondusson, J. Degert, J. Oberle, S. J. Yun, Y. H. Lee, E. Freysz</i>	
WAFER-SCALE INSPECTION OF GRAPHENE CONDUCTIVITY BY THZ NEAR-FIELD SCANNING: AS-GROWN ON SAPPHIRE AND AFTER TRANSFER TO SiO <sub>2</sub> /Si .....	891
<i>Alexander Michalski, Simon Sawallich, Simonas Krotkus, Himadri Pandey, Katarina Satender, Michael Heuken, Ben Conran, Clifford McAleese, Michael Nagel, Max C. Lemme</i>	
GENERATION OF TERAHERTZ RADIATION IN NANOMETER FILMS:Ge/ $\alpha$ -Sn .....	892
<i>V. N. Trukhin, I. A. Mustafin, P. G. Gavrilova, F. V. Kusmartsev, A. Kusmartseva, Y. Liu, B. Zhang, Y. Luo</i>	
SYNCHRONOUSLY PUMPED TERAHERTZ PARAMETRIC OSCILLATOR DRIVEN BY AMPLIFIED PICOSECOND MODE-LOCKED LASER .....	893
<i>Y. Oshima, T. Naganawa, H. Zen, T. Kii, H. Ohgaki</i>	
PHOTOMIXING THZ GENERATION FROM NITROGEN-ION-IMPLANTED GaAs METAL- SEMICONDUCTOR-METAL DIODES ENHANCED BY A BRAGG MIRROR .....	894
<i>Genyu Chen, Martin Mikulics, Roman Adam, Anthony Pericolo, John Serafini, Stefan Preble, J. Cheng, C. Chimera, I. Komissarov, Hilde H. Hardtdegen, Roman Sobolewski</i>	
LOW-NOISE 300-GHZ OSCILLATOR BASED ON AN OPTICAL SIN MICRORESONATOR .....	896
<i>T. Tetsumoto, F. Ayano, M. Yeo, J. Webber, T. Nagatsuma, A. Rolland</i>	

MAGNETIC-FIELD ENHANCEMENT OF THZ SURFACE EMISSION IN HIGHLY RESISTIVE GAAS .....	898
<i>Genyu Chen, Debamitra Chakraborty, Jing Cheng, Charles Chimera, Ivan Komissarov, Martin Mikulics, Roman Adam, Daniel E. Bürgler, Claus M. Schneider, Hilde Hardtdegen, Roman Sobolewski</i>	
POWERING A PHOTOGUN USING SINGLE-CYCLE TERAHERTZ.....	900
<i>T. Kroh, T. Rohwer, H. Dinter, M. Kellermeier, M. Fakhari, U. Demirbas, H. Cankaya, M. Pergament, M. Hemmer, R. Aßmann, F. X. Kärtner, N. H. Matlis</i>	
EFFICIENT 3-DIMENSIONAL PHOTONIC-PLASMONIC PHOTO-CONDUCTIVE SWITCHES .....	902
<i>Giorgos Georgiou, Clément Geffroy, Christopher Bauerle, Jean-François Roux</i>	
AMORPHOUS Y-BA-CU-O THIN FILMS: NOISE STUDIES AND PYROELECTRIC PROPERTIES FOR UNCOOLED INFRARED AND TERAHERTZ DETECTION APPLICATIONS.....	904
<i>Alain J. Kreisler, Vishal S. Jagtap, Annick F. Dégardin</i>	
A FIBER-COUPLED BIAS-FREE PHOTOCONDUCTIVE TERAHERTZ SOURCE .....	906
<i>Deniz Turan, Ping-Keng Lu, Mona Jarrahi</i>	
TERAHERTZ WAVE GENERATION FROM WATER AT DIFFERENT TEMPERATURES .....	908
<i>Yuqi Cao, E Yiwen, Anton Tcypkin, Pingjie Huang, X.-C. Zhang</i>	
GESN PLASMONIC TERAHERTZ PHOTOCONDUCTIVE ANTENNA .....	910
<i>Wang-Chien Chen, Shang-Hua Yang</i>	
STUDIES OF TERAHERTZ RADIATION FROM OPTICALLY EXCITED INDIUM TIN OXIDE / SEMI INSULATING GALLIUM ARSENIDE INTERFACE .....	912
<i>Anup Kumar Sahoo, Chia-Ming Mai, Shih-Ying Kang, Peichen Yu, Ci-Ling Pan</i>	
PERFORMANCE OF A THZ TRANSCEIVER USING A 1550-NM-PULSED SUPERRADIANT SOURCE .....	914
<i>W-D. Zhang, E. R. Brown</i>	
TERAHERTZ EMISSION AMPLITUDE-BASED 2D MAPPING OF THE FE THICKNESS PROFILE IN FE/PT SPINTRONIC HETEROSTRUCTURE .....	915
<i>Y. Koike, S. Tetsukawa, M. Nishitani, H. Kitahara, V. K. P. Mag-Usara, M. Asakawa, M. Yoshimura, M. Tani, M. Nakajima</i>	
LOW COST AND STABLE THZ-TDS SYSTEM USING LASER CHAOS .....	917
<i>Fumiyoshi Kuwashima, Takuya Shirao, Kazuyuki Iwao, Masahiko Tani, Kazuyoshi Kurihara, Kohji Yamamoto, Osamu Morikawa, Hideaki Kitahara, Makoto Nakajima</i>	
LOW-TEMPERATURE-GROWN GALLIUM ARSENIDE PHOTOCONDUCTORS WITH PHOTORESPONSE REACHING 25 MA/W UNDER 1550NM CW EXCITATION.....	919
<i>C. Tannoury, M. Billet, C. Coinon, J-F. Lampin, E. Peytavit</i>	
INTEGRATION AND CHARACTERISATION OF SCHOTTKY DIODES WITH A PRE-AMPLIFIER FOR THZ APPLICATIONS .....	920
<i>Ahid S. Hajo, Oktay Yilmazoglu, Franko Küppers, Thomas Kusserow</i>	
DIRECT TIME AXIS RECONSTRUCTION FOR THZ-TDS SYSTEMS WITH ULTRA-HIGH REPETITION RATES .....	922
<i>V. Cherniak, K. Tybussek, S. C. Tonder, Marlene Zander, Wolfgang Rehbein, Martin Moehrl, J. C. Balzer</i>	

TERAHERTZ TRANSIENTS EMITTED FROM LA-SR-MN-O/METAL NANOBILAYERS EXCITED BY FEMTOSECOND OPTICAL PULSES.....	924
<i>Genyu Chen, Leszek Gladczuk, Piotr Przyslupski, Jing Cheng, Ivan Komissarov, Roman Adam, Daniel E. Bürgler, Sarah Heidtfeld, Derang Cao, Martin Mikulics, Hilde Hardtdegen, Claus M. Schneider, Roman Sobolewski</i>	

THEORETICAL STUDY OF QUANTUM-CORRELATED OPTICAL-TERAHERTZ BIPHOTONS.....	926
<i>A. A. Leontyev, P. A. Prudkovskii, G. Kh. Kitaeva</i>	

**Author Index**