

Program

The 8th International Workshop on Far-Infrared Technologies (IW-FIRT 2021)

Date: 8 - 9 March, 2021. Venue: Online (Zoom) workshop hosted by FIR UF

8 Mar. (Mon)

Start time	Session	No.	Time	Name (Affiliation)	Title	Chairperson
14:00	Opening remarks			Trustee, Vice President for Research, Industry-Academia Collaboration, and Social Cooperation, Univ. of Fukui: Shinichiro Sue		
14:05	Opening talk from FIR UF		0:10	Chairman of IW-FIRT2021: Masahiko Tani (FIR UF)		Mitsudo
14:15	Interaction of biological molecules, tissues with THz waves	8-1	0:15	Yoshinori Tatematsu (FIR UF)	Recent progress on development and applications of gyrotrons at FIR UF	
14:30		8-2	0:30	Takayasu Kawasaki (Tokyo Univ. of Science, Japan)	Use of Intense Terahertz Waves for Regulation of Amyloid Fibrillation	
15:00		8-3 a,b	0:30	Masahiko Harata (Tohoku Univ., Japan), Shota Yamazaki (RIKEN, Japan)	Actin filament is one of the key biomolecules affected by THz wave	
15:30	Break		0:15			
15:45	Terahertz spectroscopy	8-4	0:15	Masahiko Tani (FIR UF)	Terahertz Spintronic Emission from Metallic Hetero-Structure and Its Applications	Escalaño
16:00		8-5	0:30	Takeshi Yasui (Tokushima Univ., Japan)	THz dual-comb spectroscopy using a free-running single-cavity wavelength-multiplexed mode-locked fiber laser (Video)	
16:30		8-6	0:15	Zhenyu Zhao (Shanghai Normal Univ., China)	Manipulation on terahertz slow light at spoof surface plasmon-induced transparency windows	
16:45		8-7	0:30	Inna Tupaeva (Southern Federal Univ., Russia)	Organic Crystals for Terahertz Spectroscopy	
17:15	Break		0:15			
17:30	Development and application of gyrotrons	8-8	0:30	Alexei Kuleshov (O. Ya. Usikov Institute for Radiophysics and Electronics of NAS of Ukraine, Ukraine)	Recent Advances in Double-Beam Gyrotrons at High Frequencies	Yamaguchi
18:00		8-9	0:30	John Jelonnek (Karlsruhe Institute of Technology, Germany)	Ongoing Gyrotron Activities at KIT	
18:30		8-10	0:30	Svilen Sabchevski (Institute of Electronics of BAS, Bulgaria)	Novel and Emerging Applications of the Gyrotrons Worldwide: Current Status and Prospects	
19:00	End					

■Note

All invited talks are 30 minutes talks. Talks of contributed papers are 15 minutes talks. Please leave the time for discussions (5 min).

9 Mar. (Tue)

<i>Start time</i>	<i>Session</i>	<i>No.</i>	<i>Time</i>	<i>Name (Affiliation)</i>	<i>Title</i>	<i>Chairperson</i>
10:00	Terahertz spectroscopy and interaction to biological molecules	9-1	0:30	Harumi Sato (Kobe Univ., Japan)	Intermolecular hydrogen bonding of polymer by terahertz and low-frequency Raman spectroscopy	Furuya
10:30		9-2	0:30	Yukihiro Ozaki (Kwansei Gakuin Univ.; Guest prof. of FIR UF, Japan)	History, Developments, and Perspectives of FIR, Terahertz, and Low-frequency Raman Spectroscopy	
11:00		9-3	0:30	Keisuke Tominaga (Kobe Univ., Japan)	THz Molecular Science in Condensed Phases	
11:30		9-4	0:30	Setsuko Komatsu (Fukui Univ. of Technology; Guest prof. of FIR UF, Japan)	Molecular-Biological Effects of Millimeter-Waves Irradiation on Crop-Plant Growth under Flooding Conditions	
12:00	Lunch		2:00			
14:00	Beyond 5G/6G, material sciences	9-5	0:30	Iwao Hosako (NICT, Japan)	Expectations for Terahertz Radio in Beyond 5G/6G	Fujii
14:30		9-6	0:15	Seitaro Mitsudo (FIR UF)	TBA	
14:45		9-7	0:30	Hideyuki Takahashi (Kobe Univ., Japan)	Force-detected high-frequency electron spin resonance at 154 GHz using high-power millimeter-wave source gyrotron	
15:15	Break		0:15			
15:30	Magnetic resonance, biological molecules	9-8	0:30	Masaki Horitani (Saga Univ., Japan)	Advanced High Field and THz ESR Spectroscopic Studies on Heme Proteins with Integer Spin System	Fukunari
16:00		9-9	0:30	Mitsuru Akaki (Kobe Univ., Japan)	Pulsed high-field ESR in multiferroic SrMn_2O_7 materials	
16:30		9-10	0:15	Masahiko Imashimizu (AIST, Japan)	Effects of Nonthermal Excitation Mediated by Terahertz Radiation on Biomolecular Dynamics and Reactions	
16:45	Break		0:15			
17:00	Development and application of high-power/high-frequency radiation sources	9-11	0:30	Mikhail Glyavin (Institute of Applied Physics, RAS, Russia)	Quest for future of gyrotrons: IAP RAS status	Tatematsu
17:30		9-12	0:30	Sergey Morozov (Institute of Applied Physics, RAS, Russia)	Investigation of Frequency-Multiplication and Microwave Absorption in Semiconductors for the Development of High Power THz band Sources and Novel Application of THz Waves	
18:00		9-13	0:15	Alexander Tsvetkov (Institute of Applied Physics, RAS, Russia)	Progress in the development of ultra-stable gyrotrons for spectroscopy and plasma applications	
18:15		9-14	0:30	Irina Zotova (Institute of Applied Physics, RAS, Russia)	Mode Interaction in THz Band Harmonic Gyrotrons: Theory and Experiments	
18:45	Closing		0:10	Masahiko Tani (FIR UF)		
18:55	End					

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Poster Presentations

Poster session: on Google drive, on-demand session

Note: Instructions on how to participate in the poster session will be announced separately.

No.	Name of the presenter	Title
P-1	Jessica Afalla (Univ. of Tsukuba, Japan)	Heteroepitaxial growth of LT-GaAs on Silicon: effects on optical properties
P-2	Dmitry S. Bulgarevich (NIMS, Japan; Guest prof. of FIR UF)	Development of Terahertz Magneto-Optic Imaging for Metal Nondestructive Testing
P-3	Mary Clare Escaño (FIR UF)	Direct Identification and Probing of the Origin of Two-Step Photon Absorption in LT-GaAs by First-Principles Calculations and STM/STS Measurements
P-4	Andrey Fokin (Inst. of Appl. Phys., RAS, Russia)	Possibility to reduce the influence of the uniform section taper on the diffraction quality factor of the gyrotron cavity
P-5	Yutaka Fujii (FIR UF)	Development of a Millimeter-Wave ESR/NMR Double-Magnetic-Resonance Measurement System on ^3He - ^4He Dilution Refrigerator and Its Use for Measurements of Shallow P-Doped Si
P-6	Akira Fukuda (Hyogo Coll. of Medicine, Japan)	Development of mmwave resistively-detected electron spin resonance system of two-dimensional electron gas in InSb quantum-well structure
P-7	Naum Ginzburg (Inst. of Appl. Phys., RAS, Russia)	Progress in Development of High-Frequency Planar Gyrotrons with Sheet Electron Beams and Transverse Energy Extraction
P-8	Kanata Hayashi (FIR UF)	Angular rotation ESR in the X-band measurements of S=1/2 quasi two-dimensional antiferromagnet henmilitite
P-9	Yuya Ishikawa (FIR UF)	Development of a cylindrical resonator for millimeter-wave band ESR/NMR double magnetic resonance
P-10	Shingo Ito (FIR UF)	Analysis of the dependence of the oscillation signal intensity on the distance between the gyrotron axis and the magnetic axis in Gyrotron FU CW GVII
P-11	Keisuke Iwabuchi (Kanazawa Univ., Japan)	Radiation from K-band Backward-Wave Oscillator with Staggered Double-Grating Slow Wave Structure
P-12	Jarno Järvinen (Univ. of Turku, Finland)	Pulsed electron spin resonance spectrometer operating at 130 GHz with application to As doped silicon below 1 K temperatures
P-13	Vladimir Manuilov (Inst. of Appl. Phys., RAS, Russia; Nizhny Novgorod State Univ, Russia)	Development of continuous wave sub-THz Gyrotron with Field Emitter for Spectroscopy Application
P-14	Maho Matsukura (Univ. of Tsukuba, Japan)	Rectifying Efficiency Estimation of MW-DC Cyclotron Wave Converter
P-15	Maria M. Melnikova (Inst. of Radio Eng. & Electronics, RAS, Russia)	Studying of injection locking of the second-harmonic THz-band gyrotron by an external driving signal
P-16	Kazuki Nakagawa (FIR UF)	Observation of Fundamental Harmonic Oscillation in a Second Harmonic Multi-Frequency Gyrotron with Gaussian Beam Output
P-17	Tomoki Oida (FIR UF)	Optimization and Development of Flat NMR Coil for Millimeter-Wave Double Magnetic Resonance Measurements
P-18	Ryotaro Okamoto (FIR UF)	Visible Light Emission from Porous Carbon Fibers under High-Power Millimeter-Wave Beam Irradiation
P-19	Nikita M. Ryskin (Kotelnikov IRE RAS, Russia)	Development of Miniaturized Sub-THz Traveling-Wave Tubes with Multiple Sheet Electron Beams
P-20	Vitalii I. Shcherbinin (National Science Center "Kharkiv Institute of Physics and Technology", Ukraine)	Advanced coaxial cavities for sub-terahertz second-harmonic gyrotrons
P-21	Alexander Shugurov (Univ. of Nizhny Novgorod, Russia)	Avoiding the effect of intrinsic birefringence in noncollinear electro-optic detection of terahertz waves in a prism-coupled LiNbO ₃ layer
P-22	Miezel L. Talara (FIR UF)	Diabolo-shaped Fe/Pt Spintronic Antennas with Different Pt Thicknesses for Efficient THz Wave Generation
P-23	Tetiana I. Tkachova (National Science Center "Kharkiv Institute of Physics and Technology", Ukraine)	Mode-Converting Corrugations for Mode Selection in Cavities of Second-Harmonic Gyrotrons
P-24	Masato Watanabe (FIR UF)	Design of a Three-Stage-Cavity for Super Multi-Frequency Oscillations in a 100 - 200 GHz Gyrotron