

# Program

## March 5 (Tuesday)

### Note

Invited talks are 30-minute talks including the time for discussions (~5 min). Contributed talks indicated by "#" are 20-minute talks. "‡" indicates awardee of the financial support for young researchers. For oral presentations, you can connect your own PC to LCD projector via standard RGB cable (mini D-sub 15 pin connector). If you will not bring your own PC but you have your presentation file with you, please let us know in advance. For poster presentations, please refer to the note in the list of poster presentations.

9:05 - 9:15 Opening remarks by

Trustee, Vice President for Research, Industry-Academia Collaboration, and Social Cooperation, Univ. of Fukui

Time	Session	No.	Presenter (Affiliation)	Title	Chair.
9:15	Opening talk	5a-1	Masahiko Tani (FIR UF)	Research Activities on Far Infrared Technology in FIR UF	Mikhail Yu. Glyavin
9:35	Development of gyrotrons	5a-2	Yoshinori Tatematsu (FIR UF)	Development of sub THz gyrotrons in wide frequency band in FIR UF	

10:05 – 10:30 Break

10:30	THz source development and applications	5a-3	Stefan Knirck (Max-Planck-Institute for Physics, Germany)	Far-Infrared Technologies in Axion and Hidden Photon Astroparticle Physics	Svilen Sabchevski
11:00		5a-4	Yuichi Ogawa (Kyoto Univ., Japan)	Development of the cell measurement system combining a gyrotron and 60 GHz near-field array sensor	
11:30		5a-5	Michael A. Shapiro (Massachusetts Inst. of Tech., USA)	Recent Results on the 527 GHz DNP Gyrotron and a Laser Controlled Switch	

12:00 – 13:30 Lunch

13:30	Development of gyrotrons and amplifiers	5p-1	Mikhail Yu. Glyavin (Inst. of Appl. Phys., RAS, Russia)	Gyrotrons: What Way Forward	Teruo Saito
14:00		5p-2	Gerd Gantenbein (Karlsruhe Inst. of Tech., Germany)	Overview of KIT activities on high power, high frequency gyrotron development and the role of the new FULGOR teststand at KIT	
14:30		5p-3	#,‡ Tobias Ruess (Karlsruhe Inst. of Tech., Germany)	A computer-controlled low-power RF system to generate very high-order modes used in future fusion gyrotrons	
14:50		5p-4	# Nikita M. Ryskin (Saratov State Univ. & RAS, Russia)	Development of Miniaturized Sub-THz Band Traveling-Wave Tubes	

15:10 – 15:35 Break

15:35	THz spectroscopy and techniques	5p-5	Tae-In Jeon (Korea Maritime and Ocean Univ., Korea)	Long distance THz pulses propagation in the atmosphere and remote gas sensing	Mary Clare Escaño
16:05		5p-6	Masahiko Tani (FIR UF)	New Emitters and Detectors for Terahertz Time-Domain Spectroscopy with 1.55- $\mu\text{m}$ Fs Laser Sources	
16:35		5p-7	Keisuke Tominaga (Kobe Univ., Japan)	Broadband Dielectric Spectroscopy on Proteins and Lipid Bilayers from sub-GHz to THz region	
17:05		5p-8	Marco Battiato (Nanyang Techn. Univ., Singapore)	Far out-of-equilibrium spin populations trigger giant spin injection into atomically thin MoS <sub>2</sub>	

17:35 – 18:00 Break

18:00 – 20:00 Banquet at Academy Hall

## March 6 (Wednesday)

### Note

Invited talks are 30-minute talks including the time for discussions (~5 min). Contributed talks indicated by "#" are 20-minute talks. "‡" indicates awardee of the financial support for young researchers. For oral presentations, you can connect your own PC to LCD projector via standard RGB cable (mini D-sub 15 pin connector). If you will not bring your own PC but you have your presentation file with you, please let us know in advance. For poster presentations, please refer to the note in the list of poster presentations.

Time	Session	No.	Presenter (Affiliation)	Title	Chair.
9:00	Magnetic resonance and THz source development	6a-1	Johan van Tol (National High Magnetic Field Laboratory, Florida State Univ., USA)	Pulsed EPR and Dynamic Nuclear Polarization at High Field and Frequency	Seitaro Mitsudo
9:30		6a-2	Susumu Takahashi (Univ. of Southern California, USA)	Development of a High Field Nanoscale EPR System Using NV Centers in Diamond	
10:00		6a-3	# Eduard Khutoryan (FIR UF & O. Ya. Usikov Inst. for Radiophys. and Electronics of NAS, Ukraine)	Development of CW Clinotrons for THz Applications	

10:20 – 10:45 Break

10:45	Magnetic resonance	6a-4	Shojiro Kimura (Tohoku Univ., Japan)	Electromagnon in the Quantum Spin Dimer System	Susumu Takahashi
11:15		6a-5	Jarno Järvinen (Univ. of Turku, Finland)	Dynamic Nuclear Polarization of Doped Silicon at High Fields and Low Temperatures	

11:45 – 12:00 Group photo. We shall take a photo with all participants just after the morning session.

12:00 – 13:30 Lunch

13:30	THz spectroscopy and techniques	6p-1	Yusuke Kajihara (The Univ. of Tokyo, Japan)	Thermal near-field microscopy on materials	Tae-In Jeon
14:00		6p-2	Elmer S. Estacio (Univ. of the Philippines Diliman, Philippines)	Generation and detection of terahertz radiation from MBE-grown GaAs/Si photoconductive antenna devices	
14:30		6p-3	#,‡ Neil Irvin F. Cabello (Univ. of the Philippines Diliman, Philippines)	Terahertz Emission and Detection Characteristics of MBE-grown GaAs Photoconductive Antennas – Effect of Metal Contact Composition and Substrate Growth Temperature	
14:50		6p-4	# Mary Clare Escaño (FIR UF)	Origin of two-step photon absorption in low-temperature GaAs by first principles methods	
15:10		6p-5	# Atsushi Nakanishi (Hamamatsu Photonics K. K., Japan)	Investigation of the terahertz optical properties of wood plastic composite and their effect of water uptake	

15:30 – 15:50 Break

15:50	Poster	See List of Poster Presentations.			Yutaka Fujii
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17:30 End

## March 7 (Thursday)

### Note

Invited talks are 30-minute talks including the time for discussions (~5 min) except for 7a-3. One invited talk 7a-3 consists of two short talks 7a-3-1 and 7a-3-2. Contributed talks indicated by "#" are 20-minute talks. "‡" indicates awardee of the financial support for young researchers. For oral presentations, you can connect your own PC to LCD projector via standard RGB cable (mini D-sub 15 pin connector). If you will not bring your own PC but you have your presentation file with you, please let us know in advance. For poster presentations, please refer to the note in the list of poster presentations.

Time	Session	No.	Presenter (Affiliation)	Title	Chair.
9:00	Applications of gyrotrons	7a-1	Kohei Shimamura (Univ. of Tsukuba, Japan)	Sub-terahertz Wireless Power Transmission using Gyrotron	Michael A. Shapiro
9:30		7a-2	#,‡ Kuniyoshi Tabata (The Univ. of Tokyo, Japan)	Development of a 600 kW Gyrotron for Microwave Rocket Researches	
9:50		7a-3-1	Masami Kojima (Kanazawa Medical Univ., Japan)	Ocular damage threshold to millimeter wave (162 GHz) exposure	
10:05		7a-3-2	Yukihisa Suzuki (Tokyo Metropolitan Univ., Japan)	Development and dosimetry of the 162GHz in vivo exposure system with the gyrotron for the investigation of ocular damages	

10:20 – 10:45 Break

10:45	Magnetic resonance	7a-4	Hitoshi Ohta (Kobe Univ., Japan)	Multi-Extreme THz ESR -Recent Developments and Future-	Shojiro Kimura
11:15		7a-5	Seitaro Mitsudo (FIR UF)	Application of Gyrotron for Millimeter Wave Pulsed ESR Measurements	
11:45	Closing	Masahiko Tani (FIR UF)			

11:55 End

## Poster Presentations (15:50 - 17:30 on March 6 at 13th floor of Science Tower I)

### Note

The poster board size is 90 cm in width and approx. 180 cm in height. Use detachable stick tape to put up your posters on the poster boards. DO NOT use pushpins. The detachable stick tape is available in the poster session room. A presenter should be in front of each poster board during the following time:

Odd number: 15:50 - 16:40; even number: 16:40 - 17:30

No.	Presenter (Affiliation)	Title
P-1	Svilen Sabchevski (FIR UF & Institute of Electronics of BAS, Bulgaria)	Current Status and Functionality of Our Software Packages for Numerical Studies, Computer-Aided Design (CAD) and Optimization of Gyrotrons
P-2	Maho Matsukura (Univ. of Tsukuba, Japan)	Wireless Power Transfer Using 28 GHz Gyrotron and Rectenna
P-3	Kohei Shimamura (Univ. of Tsukuba, Japan)	Sub-terahertz wireless power transmission using 303 GHz Gyrotron
P-4	Teruo Saito (FIR UF)	Frequency Stability of a High Power Sub-THz Gyrotron
P-5	Tatsuya Ueyama (FIR UF)	Development of a Second Harmonic Multi-Frequency Gyrotron with Gaussian Beam Output, Gyrotron FU CW GVII
P-6	Benjamin Ell (Karlsruhe Inst. of Tech., Germany)	Multistage Depressed Collector Design Studies for High Power Gyrotrons Based on the ExB Drift Concept
P-7	Nikita M. Ryskin (Saratov State Univ. & RAS, Russia)	Influence of mode competition on phase locking in gyrotrons
P-8	Mikhail Yu. Glyavin (Inst. of Appl. Phys., RAS, Russia)	Suppression of Parasitic Modes in 3d Harmonic Terahertz-Range Gyrotrons with Specially Increased Velocity Spread
P-9	Shin Kubo (National Inst. for Fusion Sci., Japan)	Grating reflector mirror design for sub-Tera-Hz scattering in the QUEST
<del>P-10</del>	CANCELED	
P-11	Yuto Maeda (FIR UF)	Design Improvement of a Complex-Cavity resonator for the 400 GHz Second-Harmonic Gyrotron
P-12	Yuusuke Yamaguchi (FIR UF)	Observation of Super-Multiple Frequency Oscillations with a Complex-Cavity Gyrotron
P-13	Ryota Kamiya (FIR UF)	Development of Phase Correcting Mirrors for Gyrotron FU CW GV Based on Radiation Profile Measurements
P-14	Masafumi Fukunari (FIR UF)	Observation of Filamentary Array Formations under Overcritical to Subcritical Conditions in 303 GHz Millimeter-Wave Air-Breakdown
P-15	Takayasu Kawasaki (Tokyo Univ. of Sci., Japan)	Irradiation Effect of Gyrotron on Amyloid Fibrils
P-16	Dmitry S. Bulgarevich (National Inst. for Materials Sci., Japan)	Terahertz Waveform Recognition with Machine Learning

P-17	Daishiro Koide (Univ. of Fukui, Japan)	Influence of Photo-excitation on Terahertz Waveform Transmitted through Silicon
<del>P-18</del>	CANCELED	
P-19	Hideaki Kitahara (FIR UF)	Dynamic Range and Noise Floor of Heterodyne Electro-optic Sampling for Terahertz Wave using Polarization Filtering
P-20	Tokihiko Tokuzawa (National Inst. for Fusion Sci., Japan)	Developments of sub-THz wave camera and application for plasma diagnostics
P-21	Jessica Afalla (FIR UF)	High THz emission enhancement in MODFET structures biased by an external magnetic field
P-22	Marian Gabriel Banciu (Institute of Materials Physics, Romania)	Investigations on some dielectric materials in sub-Terahertz and Terahertz beams
P-23	Kah Wuy Chin (The Univ. of Tokyo & National Astronomical Observatory of Japan)	Compact On-chip Wideband Bandpass Filter Design for Millimeter/Submillimeter Wave Multichroic Camera
P-24	Alexander E. De Los Reyes (Univ. of the Philippines Diliman, Philippines)	Temperature-Dependence of the Photoluminescence and Terahertz Emission of MBE-Grown Single- and Multi-Layered InAs/GaAs Quantum Dots
P-25	Takashi Furuya (FIR UF)	Development of High Frequency Resolution FID Measurement Method by Terahertz Pulse Excitation
P-26	Kohshi Inomata (FIR UF)	Transmittance of terahertz wave through a metal parallel plate waveguide coupled with a metal taper investigated by FDTD simulation
P-27	Masahiko Tani (FIR UF)	Electro-Optic Sampling of Terahertz Wave using Polarization Filtering
P-28	Lou Serafin M. Lozada (Kobe Univ., Japan)	Conductivity and Carrier Density of Polyaniline Containing Polymer-Clay Composite Studied by Terahertz Time-Domain Spectroscopy
P-29	Mitsuru Toda (FIR UF & JEOL RESONANCE)	Discussion of Overhauser effect in terms of the second order non-linear dynamical magnetic susceptibilities
P-30	Yutaka FUJII (FIR UF)	Development of a Millimeter-Wave ESR Measurement System for Ultra-Low Temperatures and Its Application to Copper Pyrazine Dinitrate: Possible Temperature Sensor from ESR Spectrum
P-31	Kazuki Dono (FIR UF)	FT-ESR measurements by using a 154 GHz gyrotron as a radiation source
P-32	Yuya Ishikawa (FIR UF)	Development of a meanderline on Fabry-Pérot resonator for ESR/NMR double magnetic resonance measurements
P-33	Yuuta Yamamoto (FIR UF)	Microwave extraction of essential oils from Japanese plants
P-34	Hafil Perdana Kusumah (FIR UF)	Microwave Extraction of Essential Oils from Mikan Peel
P-35	Fitriani Ahmar (FIR UF)	Millimeter Wave Characteristic of Glass with Graphene Impurity

## Abstracts