

Program and Abstracts

The 5th International Workshop on Far-Infrared Technologies 2014 (IW-FIRT 2014)

第5回遠赤外技術に関する国際ワークショップ

5-7 March, 2014
University of Fukui, Japan

Organizer (主催)

Research Center for Development of Far-Infrared Region, University of Fukui
(福井大学遠赤外領域開発研究センター)

Co-sponsor (協賛)

The Japan Society of Infrared Science and Technology (日本赤外線学会)
Terahertz Technology Forum (テラヘルツテクノロジーフォーラム)
The Japan Society of Plasma Science and Nuclear Fusion Research (プラズマ・核融合学会)
The Society of Electron Spin Science and Technology (SEST) (電子スピンサイエンス学会)
The Professional Group of Terahertz Technology, The Japan Society of Applied Physics
(応用物理学会テラヘルツ電磁波技術研究会)
The Division of Terahertz Spectroscopy, The Spectroscopical Society of Japan
(日本分光学会テラヘルツ分光部会)

Sponsor company (企業協賛)

AmTechs Corporation (株式会社 アムテックス)
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Japan Superconductor Technology Inc. (JASTEC)
(ジャパン スーパーコンダクタ テクノロジー 株式会社)
JEOL RESONANCE Inc. (株式会社 JEOL RESONANCE)

Financial support (後援)

Fukui Convention & Visitors Bureau (財団法人福井観光コンベンション協会)

Venue

Workshop site

Registration desk :

13th floor of Science Tower I (see the campus map)

March 5 : 8:30 ~

March 6 and 7 : 9:00 ~

Oral presentations :

Conference Room on 13th floor of Science Tower I

(see the campus map)

Poster presentations :

Lobby "Foyer" on 13th floor next to the conference room of Science Tower I

(see the campus map)

Banquet :

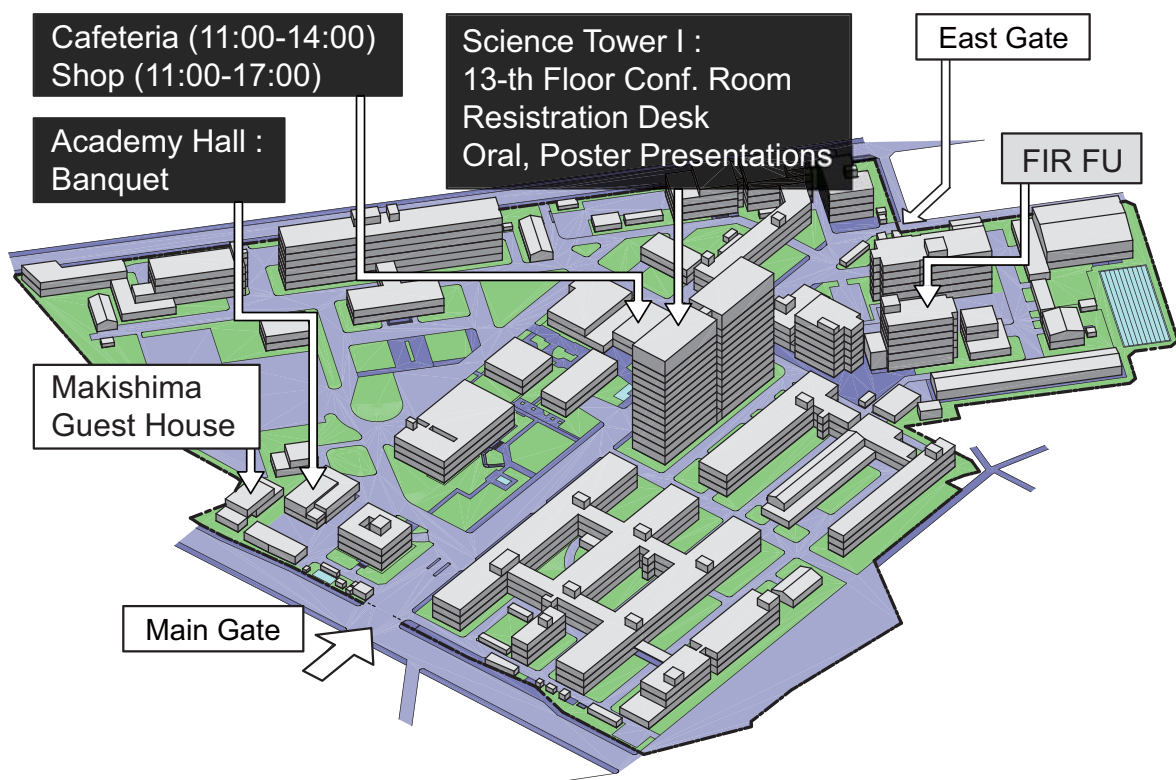
Academy Hall

(see the campus map)

Cafeteria and shop in university

You can have a lunch at cafeteria of university co-op (see the campus map) during the workshop from 11:00 to 14:00. Snacks, drinks and stationery are available at a small shop (open from 11:00 to 17:00) in the same building.

Campus map (Bunkyo campus of University of Fukui)



Univ. of Fukui
"Bunkyo Campus"

East Gate

FIR-FU

Main Gate

Echizen Railway
"Tawaramachi Sta."

Access to Bunkyo campus
of University of Fukui
(<http://www.u-fukui.ac.jp/eng/access/>)

Taxi :
Most convenient way to FIR FU. You can take a taxi in front of Hotel Fujita and JR Fukui station (5 - 10 min., approx. 1000 JPY).

Echizen railway (Awaro-Mikuni line) :
Fukui station - Fukudai-mae-nishi-fukui station (every 30 min., approx. 10 min., 150 JPY for one way). The timetable is available at <http://www.echizen-tetudo.co.jp/> (only Japanese).

Bus :
Get on the bus (Line No. 21, 27, 28) leaving from bus stop No.10 at the local bus station and get off at Fukui daigaku-mae (approx. 10 min., 200 JPY for one way). The timetable is available at <http://bus.keifuku.co.jp/rosen/> (only Japanese).

Walk :
You can walk to FIR FU from Hotel Fujita (approx. 1.7 km) or from JR Fukui station (approx. 2.4 km).

Echizen Railway
"Fukudai-mae-nishi-fukui Sta."

Tawara

Haruyama

Jinaijoshikoko
仁愛女子学校

Court Building

Junka

Hotel Fujita

Shiyakushoma
市役所

Park

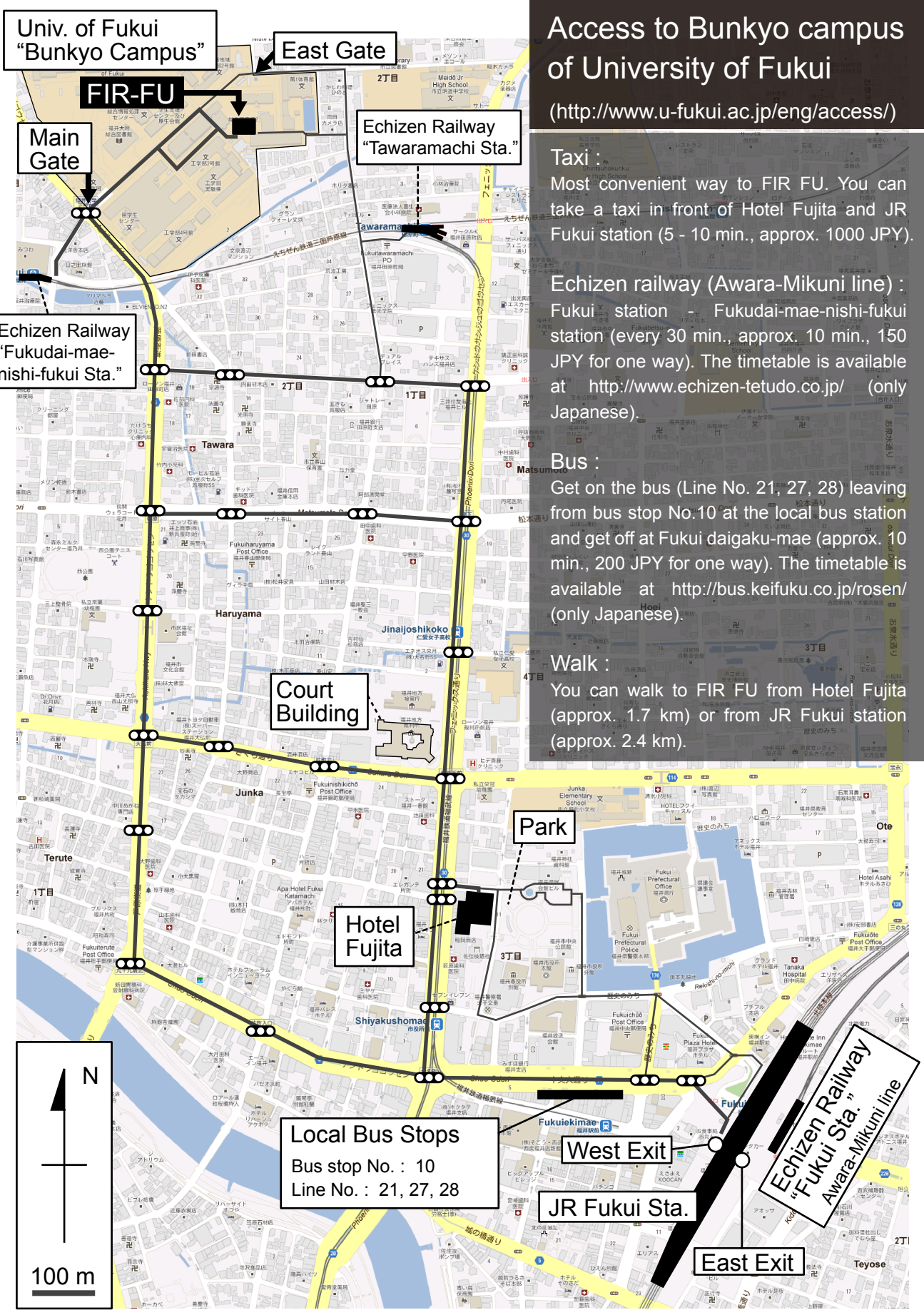
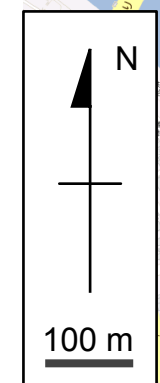
Local Bus Stops
Bus stop No. : 10
Line No. : 21, 27, 28

West Exit

JR Fukui Sta.

East Exit

Echizen Railway
"Fukui Sta."
Awaro-Mikuni line



Program

5/ Mar. (Wednesday)

The registration desk opens from 8:30.

Note:

All invited talks are 30 minutes talks including the time for discussions (~5 min). Talks of contributed papers indicated by "#" are 20 minutes talks. For oral presentations, you can connect your own PC to LCD projector via standard RGB cable.

9:10 – 9:20 Opening remark

by Executive Vice President for Research and International Affairs

9:20 - 10:20		Development and Applications of Gyrotrons	Chairman : O. Dumbrajs
5a-1	9:20	Research activities on far infrared technology in FIR FU Teruo Saito (FIR FU)	
5a-2	9:50	THz Gyro-Devices. Possible Ways of Parameters Enhancement Gregory G. Denisov (Inst. of Applied Physics, RAS, Russia)	

10:20 – 10:40 Break

10:40 – 12:10		Development and Applications of Gyrotrons	Chairman : M. Thumm
5a-3	10:40	Theoretical and Experimental Investigations of High Frequency Gyrotrons Mikhail Yu. Glyavin (Inst. of Applied Physics, RAS, Russia)	
5a-4	11:10	Some Possibilities of Gyro-TWT's to Operate in the Range of Sub-THz Frequencies Gregory S. Nusinovich (Univ. of Maryland, USA)	
5a-5	11:40	Development of Gyrotron FU CW G-series Yoshinori Tatematsu (FIR FU)	

12:10 – 13:30 Lunch

13:30 – 15:20		Development and Applications of Gyrotrons	Chairman: G. S. Nusinovich
5p-1	13:30	Development of Gyrotrons FU CW Series for Applications to High Power THz Spectroscopy Toshitaka Idehara (FIR FU)	
5p-2	14:00	Non-stationary Regimes on a THz Gyrotron Oscillator for DNP Applications Jean-Philippe Hogge (École Polytechnique Fédérale de Lausanne, Switzerland)	
5p-3	14:30	Recent Progress of Collective Thomson Scattering Diagnostic for LHD and Design Study for JT-60SA Masaki Nishiura (Univ. of Tokyo)	
5p-4	15:00	Direct Measurement of Positronium Hyperfine Structure with a High-Power Millimeter-wave Gyrotron Akira Miyazaki (Univ. of Tokyo) #	

15:20 – 15:40 Break

15:40 – 17:30		Development and Applications of Gyrotrons	Chairman : M. Yu. Glyavin
5p-5	15:40	An Electrodynamics Study of Wave Interactions with a Conducting Medium Kwo Ray Chu (National Taiwan Univ., Taiwan)	
5p-6	16:10	Frequency Tunability of the Gyro-BWO Olgierd Dumbrajs (Univ. of Latvia, Latvia; Guest prof. of FIR FU)	
5p-7	16:40	Development of a 400 GHz Band Frequency-Tunable Second-Harmonic Gyro-BWO Yuusuke Yamaguchi (FIR FU) #	
5p-8	17:00	Towards a High-Power Millimeter-Wave Gyrotron for DEMO Manfred Thumm (Karlsruhe Inst. of Tech., Germany)	

17:30 – 18:00 Break

18:00 – 20:00 Banquet (at Academy Hall)

6/ Mar. (Thursday)

The registration desk opens from 9:00.

Note:

All invited talks are 30 minutes talks including the time for discussions (~5 min). Talks of contributed papers indicated by "#" are 20 minutes talks. For oral presentations, you can connect your own PC to LCD projector via standard RGB cable.

9:00 – 10:30 THz spectroscopy and techniques		Chairman : F. Miyamaru
6a-1	9:00	THz-TDS Investigations on Dielectrics for Microwave Applications Gabriel M. Banciu (National Inst. of Materials Physics, Romania)
6a-2	9:30	Cherenkov-Type Terahertz Emission Spectroscopy of Ultrafast Optomagnetic Phenomena Michael I. Bakunov (Univ. Nizhny Novgorod, Russia)
6a-3	10:00	Non-collinear and Non-Ellipsometric Electro-Optic Sampling for Efficient THz Wave Detection Masahiko Tani (FIR FU)

10:30 – 10:50 Break

10:50 – 12:00 THz spectroscopy and techniques		Chairman : M. I. Bakunov
6a-4	10:50	Spatial and Temporal Control of THz Waves with Metamaterials Fumiaki Miyamaru (Shinshu Univ.)
6a-5	11:20	Terahertz Ellipsometry Takeshi Nagashima (Osaka Univ.) #
6a-6	11:40	Terahertz Spectroscopy of Neutral/ionic Molecules Using Evenson-Type Spectrometer with Tunable Light Source F. Matsushima (Univ. of Toyama) #

12:00 – 12:15 Photography

12:15 – 13:40 Lunch

13:40 – 15:10 Pulsed and CW ESR		Chairman : S. Vasiliev
6p-1	13:40	Arbitrary Waveform Pulsed ESR at Very Low Temperature Masahiro Kitagawa (Osaka Univ.)
6p-2	14:10	Development of the Pulsed ESR Spectrometer by Using a Gyrotron as the High Power Radiation Source Seitaro Mitsudo (FIR FU)
6p-3	14:40	Developments of Multi-Extreme THz ESR in Kobe Hitoshi Ohta (Kobe Univ.)

15:10 – 15:30 Break

15:30 – 18:00 Poster session		Chairman : Y. Fujii
P-1 ~ P-18	A presenter should be in front of each poster board during the poster session at Lobby "Foyer" on 13 th floor next to the conference room. (The boards for posters are available in the poster session room from 8:50 on 5 Mar until 10:20 on 7 Mar.)	

7/ Mar. (Friday)

The registration desk opens from 9:00.

Note:

All invited talks are 30 minutes talks including the time for discussions (~5 min). Talks of contributed papers indicated by "#" are 20 minutes talks. For oral presentations, you can connect your own PC to LCD projector via standard RGB cable.

9:00 – 10:30 Dynamic nuclear polarization		Chairman : S. Mitsudo
7a-1	9:00	Application of High-Frequency Gyrotrons to High-Field DNP-NMR Spectroscopy Toshimichi Fujiwara (Osaka Univ.)
7a-2	9:30	High Frequency Dynamic Nuclear Polarization Robert G. Griffin (Massachusetts Inst. of Tech., USA)
7a-3	10:00	Dynamic Nuclear Polarization at Ultralow Temperatures Sergey Vasiliev (Turku Univ., Finland)

10:30 – 10:50

Break

10:50 – 12:40 THz spectroscopy and techniques		Chairman : M. Tani
7a-4	10:50	Terahertz Spectroscopic Polarimetry and the Quest for THz Vibrational Circular Dichroism Charles A. Schmuttenmaer (Yale Univ., USA)
7a-5	11:20	Terahertz Spectroscopy on Condensed Phases Keisuke Tominaga (Kobe Univ.)
7a-6	11:50	Study on Weak Hydrogen Bond of Dimethylsulfoxide in Cyclohexane and Transmission Properties of Metal-Parallel-Plate Waveguides by Terahertz and Mid-IR Spectroscopy Kohji Yamamoto (FIR FU)
7a-7	12:20	Molecular Identification and Mode Assignment Using Terahertz Spectroscopy and Solid-state Density Functional Theory Feng Zhang (Kobe Univ.) #

12:40 – 12:50

Closing

Poster presentations (15:30 ~ 18:00 on 6/ Mar. at Lobby "Foyer" on 13th floor next to the conference room)

Note:

A presenter should be in front of each poster board during the poster session (15:30~18:00, 6th March). It is encouraged that poster presentations are put up from 12:30 on 5 Mar until 18:00 on 6 Mar. (The boards for posters are available in the poster session room from 8:50 on 5 Mar until 10:20 on 7 Mar.) The poster board size is 90 cm in width and 180 cm in height. Use pushpins, which are available in the poster session room, to put up your posters on the poster boards.

No.	Name	Title
P-1	E. A. P. Prieto (Univ. of the Philippines Diliman)	Improved THz Emission in Low-Temperature-Grown GaAs Surfaces with n-doped GaAs Layer
P-2	T. Shirao (Fukui Univ. of Technology)	Enhancement of Terahertz Detection Intensity by Metal V Groove Waveguide based on MLD-THz-TDS System with Laser Chaos
P-3	G. Niehues (FIR FU)	Properties of the Solar Cell Material CZTSe as a THz Emitter
P-4	S. Funkner (FIR FU)	Detecting THz Vibrational Motions of Organic Liquids by Stimulated Raman Scattering Spectroscopy
P-5	D. S. Bulgarevich (NIMS)	Detector for Polarization-Sensitive Time-Domain Terahertz Spectroscopy
P-6	T. Tokuzawa (NIFS)	Developments of Pulsed Terahertz Wave Diagnostics for Magnetically Confined Fusion Plasma
P-7	E. Anguluan (Univ. of the Philippines Diliman)	Emission of THz Radiation from Cu ₂ O Obtained by Thermal Oxidation of Cu Film on Glass Substrate
P-8	K. Murate (Nagoya Univ.)	Improvement of Dynamic Range in THz Wave Measurement System Using Nonlinear Optical Wavelength Conversion in Lithium Niobate Crystal
P-9	S. Tsuzuki (FIR FU)	Optical Properties of Silica Glass Depending on OH Concentration in THz Region
P-10	S. Azuma (FIR FU)	Frequency-Resolved Detection of THz Waves with Cherenkov-Phase-Matched Heterodyne Electro-Optic Sampling
P-11	A. Iwamae (FIR FU)	Cesium in Soil Measured by Pulsed CO ₂ Laser-Induced Breakdown Spectroscopy
P-12	S. Vasiliev (Univ. of Turku)	Cryogenic mm-wave ESR Spectroscopy
P-13	Y. Fujii (FIR FU)	High-Frequency ESR Measurements of Lightly Doped Si:P at Low Temperatures and Their Extension to Lower Temperature for High $\mu_B B/k_B T$
P-14	S. Okubo (Kobe Univ.)	Terahertz ESR Measurements of Perovskite Antiferromagnet YCrO ₃
P-15	H. Kikuchi (Univ. Fukui)	High-field ESR Measurements of S=1/2 Kagome Magnet [Cu ₃ (CO ₃) ₂ (bpe) ₃] ₂ ·2ClO ₄
P-16	I.N. Sudiana (FIR FU), S. Mitsudo (FIR FU)	Effect of Cold Isostatic Pressing on Activation Energy of Sintered High Purity Alumina
P-17	R. Ikeda (JAEA)	Progress on Development of Mega-Watt Multi-Frequency Gyrotron in JAEA
P-18	E. M. Khutoryan (FIR FU)	Gyrotron Output Power Stabilization by PID with Feedback Control of Heater Current and Anode Voltage
P-19	O. Dumbrajs (Univ. of Latvia; FIR FU)	Theoretical Study of the Gyrotron FU IV A Operation with Misaligned Electron Beam