The 9th RAP Symposium

– Extreme photonics for the future of optical science –

Date and Time:

13:00–17:35, Monday, 28th, February, 2022

10:00–17:30, Tuesday, 1st, March, 2022

Organizer: RIKEN Center for Advanced Photonics (RAP)

Supported: The Japan Society of Applied Physics, Terahertz Technology Forum, Japan Society for Cell Biology, The Biophysical Society of Japan, The Japanese Society for Neutron Science, Bioimaging Society, The Physical Society of Japan, The Optical Society of Japan, The Spectroscopical Society of Japan, The Fullerenes, Nanotubes and Graphene Research Society, Japan Society for Molecular Science, The Laser Society of Japan, The Japan Society for Laser Microscopy

Registration

https://zoom.us/meeting/register/tJ0rceioqT8tE9WrdxXKRYuz_nQVok8E9TXZ

Program

Monday, 28th, February, 2022

13:00–13:05 | Opening Remarks

Katsumi MIDORIKAWA, Director, RAP

13:05–13:10 | Welcome Address from RIKEN

Hidetoshi KODERA, Executive Director, RIKEN

13:10–14:00 | S-1 **Special Lecture**
Expectation for Photonics and Quantum Technology to Realize Society 5.0

Makoto GONOKAMI, Professor, Graduate School of Science, The University of Tokyo

14:00–14:20 | O-1
Optical Up-Conversion-Based Detection and Cross-Correlation of Sub-Nanosecond Terahertz-Wave Pulses

Yuma TAKIDA, Tera-Photonics Research Team, RAP

14:20–14:40 | O-2
Hot Carrier Dynamics and Electron-Phonon Coupling in Photoexcited Graphene Investigated by Time-Resolved Terahertz Spectroscopy

Masatsugu YAMASHITA, Terahertz Sensing and Imaging Research Team, RAP

14:40–15:00 | O-3
Progressing in High-Temperature Operation Terahertz Quantum Cascade Lasers

Li WANG, Terahertz Quantum Device Research Team, RAP

15:00–15:20 Coffee Break

15:20–15:55 | I-1 **Invited Lecture**
Creation of terahertz plasmonic devices and their applications to the next-generation beyond-5G wireless communications

Taiichi OTSUJI, Professor, Research Institute of Electrical Communication, Tohoku University

15:55–16:15 | O-4
Carrier-Envelope Phase Control of Synthesized Waveforms with Two Acousto-Optic Programmable Dispersive Filters

Yu-chieh LIN, Attosecond Science Research Team, RAP

16:15–16:35 | O-5
Development of Optical Lattice Clocks for Practical Application

Masao TAKAMOTO, Space-Time Engineering Research Team, RAP

16:35–16:55 | O-6
The Molecular Origin of Multiphasic Ultrafast Dynamics in the Primary Event of Microbial Rhodopsins

Chun-Fu CHANG, Molecular Spectroscopy Laboratory, RAP

16:55–17:15 | O-7
Formation of Organic Color Centers in Air-Suspended Carbon Nanotubes Using Vapor-Phase Reaction

Daichi KOZAWA, Quantum Optoelectronics Research Team, RAP

17:15–17:35 | O-8
Launch of a New Team and Our Future Directions

Yuya MORIMOTO, Ultrashort Electron Beam Science RIKEN Hakubi Research Team, RAP

17:35 (Session End)

Tuesday, 1st, March, 2022

10:00–10:50 | S-2 **Special Lecture**
Challenge of cutting-edge photonic technologies toward IOWN (Innovative Optical and Wireless Network) era

Tetsuomi SOGAWA, Senior Vice President, Director of NTT Science and Core Technology Laboratory Group

10:50–11:10 | O-9
Laser Induced Thrust for Space Debris Removal

Satoshi WADA, Photonics Control Technology Team, RAP

11:10–11:30 | O-10
Stress Measurements via Neutron Diffraction at Compact Accelerator-Based Neutron Source RANS

Chihiro IWAMOTO, Neutron Beam Technology Team, RAP

11:30–11:50 | O-11
Local Spatial Distribution and Enormous Red Shift of Molecularly-Oriented Near-Infrared Absorbing J-Aggregates

Tetsuya AOYAMA, Ultrahigh Precision Optics Technology Team, RAP

11:50–12:10 | O-12
Introduction of Laboratory Equipment Development Cases in Advanced Manufacturing Support Team

Masaharu WATANUKI, Advanced Manufacturing Support Team, RAP

12:10–13:10 Lunch

13:10–15:10 | Poster Session (Bioscience Building 2-3F)

15:10–15:45 | I–2 **Invited Lecture**
Development of halide perovskite semiconductors for high efficiency and high voltage output in photovoltaic performance

Tsutomu MIYASAKA, Professor, Faculty of Biomedical Engineering, Toin University of Yokohama

15:45–16:05 | O–13
Beyond the Diffraction–Limit, Super–Resolution Confocal Live Imaging Microscopy (SCLIM) Reveals New Aspects of Membrane Trafficking Pathway

Natsuko JIN, Live Cell Super–Resolution Imaging Research Team, RAP

16:05–16:25 | O–14
Retinoic Acid Distributions in the Mammalian Embryo

Satoshi SHIMOZONO, Laboratory for Cell Function Dynamics, RAP

16:25–16:45 | O–15
Superpixel Guided Deep Colorization for Video Compression

Zhe SUN, Image Processing Research Team, RAP

16:45–17:05 | O–16
High Aspect Ratio Plasmonic Structures for Gas Sensing

Cheng–Hung CHU, Innovative Photon Manipulation Research Team, RAP

17:05–17:25 | O–17
Micro/Nano Fabrication by GHz Burst–Mode Femtosecond Laser Pulses

Kotaro OBATA, Advanced Laser Processing Research Team, RAP

17:25–17:30 | Closing Remarks

Katsumi MIDORIKAWA, Director, RAP

Poster Session

13:10-15:10, Tuesday, 1st, March, 2022

※Core time
odd numbers ｜13:10-14:05
even numbers ｜14:05-15:00

Bioscience Building 2F (P-1 - P-15)

P-1 後進波パラメトリック過程によるサブテラヘルツ光のアップコンバージョン検出

野竹 孝志（テラヘルツ光源研究チーム）

P-2 バックワード・テラヘルツ波パラメトリック発振を用いた非破壊イメージング

縄田 耕二（テラヘルツ光源研究チーム）

P-3 300 GHz 帯テラヘルツボディスキャナ開発の進展

佐々木 芳彰（テラヘルツイメージング研究チーム）

P-4 細胞内蛋白質に対するテラヘルツ光照射影響

保科 宏道（テラヘルツイメージング研究チーム）

P-5 高出力・高ビーム品質面発光 THz-QCL の検討

Chen Mingxi（テラヘルツ量子素子研究チーム）

P-6 ドーピング制御による THz-QCL 高性能化の検討

三好 哲平（テラヘルツ量子素子研究チーム）

P-7 超高速磁性体プローブ光を目指した円偏光高次高調波発生

西村 光太郎（アト秒科学研究チーム）

P-8 多光子パターン照明の高分解能化とその応用

石川 智啓（アト秒科学研究チーム）

P-9 Complete Picture of Vibrational Relaxation of OH Stretch at the Air/H2O Interface: A TR-HD-VSFG Study

Woongmo SUNG（超高速分子計測研究チーム）

P-10 Mechanism of Vibrational Relaxation of Free OH Groups at the Water Surface Revealed by Time-Resolved Heterodyne-Detected Vibrational Sum Frequency Generation Spectroscopy

Ahmed MOHAMMED（超高速分子計測研究チーム）

P-11 原子核時計実現にむけたトリウムイオンのトラップ

山口 敦史（時空間エンジニアリング研究チーム）

P-12 小型光格子時計物理パッケージの開発

楊 暁達（時空間エンジニアリング研究チーム）

P-13 Waveguide coupled cavity-enhanced light emission from individual carbon nanotubes

山下 大喜（量子オプトエレクトロニクス研究チーム）

P-14 Nonlinear Photonics in Ultrahigh-Q Optical Microresonators

藤井 瞬（量子オプトエレクトロニクス研究チーム）

P-15 数サイクルレーザー波形の自由電子トモグラフィー

森本 裕也（超短パルス電子線科学理研白眉研究チーム）

Bioscience Building 3F (P-16 - P-28)

P-16 Optical measurement of droplet diffusion and particle size

村上 武晴(光量子制御技術開発チーム)

P-17 Novel high dispersion gratings for 8.2 m Subaru Telescope and TMT, ALIS(Advanced Lunar Imaging Spectrometer)

海老塚 昇(先端光学素子開発チーム)

P-18 Development of a two color imaging system in soft X-ray and visible light using reflective optics

江川 悟(先端光学素子開発チーム)

P-19 三台の理研小型中性子源

竹谷 篤(中性子ビーム技術開発チーム)

P-20 三台の理研小型中性子源による計測技術開発

高村 正人(中性子ビーム技術開発チーム)

P-21 HeLa 細胞における TGN 上におけるアダプタータンパク質の局在

山本 航(生細胞超解像イメージング研究チーム)

P-22 高速超解像顕微鏡によるゴルジ体槽成熟の時空間解析

戸島 拓郎(生細胞超解像イメージング研究チーム)

P-23 超高速顕微鏡による微細藻類の運動解析

河野 弘幸(生命光学技術研究チーム)

P-24 COCOON: 認知運動機能改善に向けたモデル生物の表現型・遺伝情報解析

太田 聡史(画像情報処理研究チーム)

P-25 金属材料の三次元内部構造観察

山下 典理男（画像情報処理研究チーム）

P-26 Characterization of carbon nanotube-substrate interaction via tip-enhanced Raman spectroscopy

Maria Vanessa Oguchi（フォトン操作機能研究チーム）

P-27 Chiral optical properties of chiral metal nanostructures

橋谷田 俊（フォトン操作機能研究チーム）

P-28 Hybrid femtosecond laser processing of microfluidic SERS chip for ultrasensitive sensing

BAI Shi（先端レーザー加工研究チーム）