

# Annual meeting / international symposium of Spectroscopical Society of Japan 2015

Monday, June 1

## Annual meeting program

- 9:45 – 9:50      Opening remarks
- 9:50 – 10:05    Sterilization in liquid by various gas plasma and measurement of reactive species using ESR and absorption spectrophotometry  
(<sup>1</sup>Tokyo Institute of Technology, Department of Energy Sciences, <sup>2</sup>Tokyo Institute of Technology, Department of Energy Bioengineering, <sup>3</sup>Kobe University, Graduate School of Medicine)  
Hiroaki Kawano<sup>1</sup>, Yosuke Watanabe<sup>1</sup>, Yota Sasaki<sup>1</sup>, Yoshihiro Takamatsu<sup>1,3</sup>, Yuriko Matsumura<sup>2</sup>, Hidekazu Miyahara<sup>1</sup>, Atsuo Iwasawa<sup>2</sup>, Takeshi Azuma<sup>3</sup>, Akitoshi Okino<sup>1</sup>
- 10:05 – 10:20    Optical emission spectroscopic observation of low-pressure N<sub>2</sub>-O<sub>2</sub> mixture plasma and its excitation kinetics in a lab-scale discharge experiment  
(<sup>1</sup>Tokyo Institute of Technology, Research Laboratory for Nuclear Reactors, <sup>2</sup>Tokyo Institute of Technology, Department of Energy Sciences, <sup>3</sup>Tokyo City University)  
Hiroshi Akatsuka<sup>1,2</sup>, Hao Tan<sup>2</sup>, Atsushi Nezu<sup>1</sup>, Haruaki Matsura<sup>3</sup>
- 10:20 – 10:35    Thermally-controlled electromagnetic properties of high-index dielectric nanostructures in the visible region  
(<sup>1</sup>Tokyo Institute of Technology, <sup>2</sup>RIKEN)  
Yuta Tsuchimoto<sup>1</sup>, Taka-aki Yano<sup>1,2</sup>, Tomohiro Hayashi<sup>1,2</sup>, Masahiko Hara<sup>1,2</sup>
- 10:35 – 10:50    Microspectroscopic Measurements of Photoluminescence from Pyrolytic DNA Nanofibers  
(<sup>1</sup>National Institute for Materials Science, <sup>2</sup>Osaka Prefecture University)  
Hidenobu Nakao<sup>1</sup>, Shiho Tokonami<sup>2</sup>, Hiroshi Shiigi<sup>2</sup>, Yoshihiko Takeda<sup>1</sup>
- 10:50 – 11:00    Coffee break
- 11:00 – 11:15    High sensitive spectroscopy for autofluorescence using surface plasmon resonance in deep-UV region  
(<sup>1</sup>Graduate school of Engineering, Shizuoka University, <sup>2</sup>Research Institute of Electronics Shizuoka University)  
Masakazu Kikawada<sup>1</sup>, Atsushi Ono<sup>1,2</sup>, Wataru Inami<sup>1,2</sup>, Yoshimasa Kawata<sup>1,2</sup>

- 11:15 – 11:30** High Efficiency Photoelectron Emission by Deep-UV Surface Plasmon Resonance  
(<sup>1</sup>Graduate School of Engineering, Shizuoka University, <sup>2</sup>Research Institute of Electronics Shizuoka University)  
Naoya Shiroshita<sup>1</sup>, Atsushi Ono<sup>1,2</sup>, Masakazu Kikawada<sup>1</sup>, Wataru Inami<sup>1,2</sup>, Yoshimasa kawata<sup>1,2</sup>
- 11:30 – 11:45** High-resolution laser spectroscopy of the *B – X* transition of <sup>14</sup>NO<sub>3</sub> and <sup>15</sup>NO<sub>3</sub> radicals  
(<sup>1</sup>Molecular Photoscience Research Center, Kobe University, <sup>2</sup>Graduate School of Information Sciences, Hiroshima City University, <sup>3</sup>The Central Office, The Graduate University for Advanced Studies)  
Kohei Tada<sup>1</sup>, Shunji Kasahara<sup>1</sup>, Takashi Ishiwata<sup>2</sup>, Eizi Hirota<sup>3</sup>
- 11:45 – 12:00 High-resolution laser spectroscopy of Cl-naphthalenes by using a single-mode UV laser  
(Kobe University, Molecular Photoscience Research Center)  
Shunji Kasahara, Ryo Yamamoto, Kenichiro Kanzawa
- 12:00 – 13:30 Luncheon seminar I
- 13:30 – 15:00 Poster session I (Odd number)
- 15:00 – 15:15** Spectral measurements of semiconductor materials by attenuated total reflectance spectroscopy  
(Kwansei Gakuin University, School of Science and Technology)  
Ichiro Tanabe, Yosuke Yamada, Yukihiro Ozaki
- 15:15 – 15:30 Study of Surface Analysis of Polystyrene Nano-Particle by Using Attenuated Total Reflectance in Far-UV  
(School of Science and Engineering, Kinki University)  
Yusuke Morisawa, Takashi Ochi
- 15:30 – 15:45 Analyses of water and mineral/biomolecule interactions under controlled relative humidity by infrared micro-spectroscopy combined with quartz crystal microbalance  
(<sup>1</sup>Department of Earth and Space Science, Osaka University <sup>2</sup>Taki Chemical Co., Ltd.)  
Satoru Nakashima<sup>1</sup>, Misa Okada<sup>1</sup>, Ryota Tomizawa<sup>1</sup>, Hiromi Ogawa<sup>1</sup>, Sachie Kudo<sup>2</sup>
- 15:45 – 16:00** Heterodyne-Detected Sum-Frequency Generation Studies on the “Buried” Silica/Water Interface and Polymer/Water Interface  
(<sup>1</sup>Molecular Spectroscopy Laboratory , RIKEN, <sup>2</sup>Ultrafast Spectroscopy Research

Team, RIKEN Center for Advanced Photonics, <sup>3</sup>Department of Applied Chemistry, Faculty of Engineering, Saitama University, <sup>4</sup>Department of Biobased Materials Science, Graduate School of Science and Technology, Kyoto Institute of Technology)

Anton Myalitsin<sup>1</sup>, Satoshi Nihonyanagi<sup>1,2</sup>, Shoichi Yamaguchi<sup>3</sup>, Junji Yanagisawa<sup>4</sup>, Takashi Aoki<sup>4</sup>, Tahei Tahara<sup>1,2</sup>

16:00 – 16:15

Development of Heterodyne-detected Chiral Vibrational Sum Frequency Generation Spectroscopy

(Graduate School of Pure and Applied Sciences, University of Tsukuba)

Masanari Okuno, Taka-aki Ishibashi

16:15 – 16:30 Coffee break

16:30 – 16:40 Presentation of the Spectroscopical Society of Japan Award 2014

16:40 – 17:00 Award lecture

17:00 – 17:20 Award lecture

17:20 – 17:25 Coffee break

17:25 – 18:00 Award lecture

18:30 – 19:30 Welcome drink

**Tuesday, June 2**

**International Symposium on “Earth atmosphere and interstellar space explored by observation and experiment”**

- 9:30 – 10:20 TBA  
(University of Toronto)  
Kaley A. Walker
- 10:20 – 10:50 A network of ground-based high-resolution Fourier transform spectrometers measuring atmospheric greenhouse gases  
(<sup>1</sup>National Institute for Environmental Studies (NIES), <sup>2</sup>Solar-Terrestrial Environmental Laboratory, Nagoya University, <sup>3</sup>Japan Aerospace Exploration Agency (JAXA), <sup>4</sup>California Institute for Technology, <sup>5</sup>University of Bremen, <sup>6</sup>Centre for Atmospheric Chemistry, University of Wollongong, <sup>7</sup>Jet Propulsion Laboratory, California Institute for Technology, <sup>8</sup><http://tcccon-wiki.caltech.edu>)  
Isamu Morino<sup>1</sup>, Makoto Inoune<sup>1</sup>, Toshinobu Machida<sup>1</sup>, Osamu Uchino<sup>1</sup>, Hirofumi Ohyama<sup>2</sup>, Shuji Kawakami<sup>3</sup>, Paul O. Wennberg<sup>4</sup>, Justus Notholt<sup>5</sup>, D. W. T. Griffith<sup>6</sup>, Debra Wunch<sup>4</sup>, Geoffrey C. Toon<sup>7</sup>, and TCCON partners<sup>8</sup>
- 10:50 – 11:00 Coffee break
- 11:00 – 11:30 History of infrared sounders for atmospheric sciences and overview of GOSAT project  
(Atmospheric and Ocean Research Institute, The University of Tokyo)  
Ryouichi Imasu
- 11:30 – 12:00 TBA  
(NICT)  
Yasuko Kasai
- 12:00 – 13:30 Lancheon seminar II
- 13:30 – 14:10 Mid-IR Laser Spectroscopy of H<sub>3</sub><sup>+</sup> Molecular Ion  
(National Tsing Hua University)  
Jow-Tsong Shy
- 14:10 – 14:40 Surface processes on interstellar dust: thermal diffusion and tunneling reaction  
(Institute of Low Temperature Science, Hokkaido University)  
Tetsuya Hama, Akira Kouchi and Naoki Watanabe

- 14:40 – 15:10 Development of GIGMICS (Germanium Immersion Grating Mid-Infrared Cryogenic Spectrograph)  
(Nagoya University)  
Yasuhiro Hirahara
- 15:10 – 15:25 Coffee break
- 15:25 – 16:05 Laboratory Astrophysics: infrared spectroscopy of charged polycyclic aromatic hydrocarbons  
Giel Berden, Juehan Gao, Annemieke Petrignani and Jos Oomens  
(Radboud University, Institute for Molecules and Materials, FELIX Laboratory)
- 16:05 – 16:35 Interstellar  $\text{H}_2\text{F}^+$  and laboratory chemical reaction study  
(Okayama University)  
Kentarou Kawaguchi
- 16:35 – 16:40 Coffee break
- 16:40 – 17:10 Laboratory optical spectroscopy of the thiophenoxy and phenoxy radicals as diffuse interstellar bands candidates  
(Tokyo University of Science)  
Mitsunori Araki, Yuki Matsushita, Kei Nwayama, and Koichi Tsukiyama
- 17:10 – 17:40 Microwave spectroscopy of interstellar molecules and its application to the radio astronomy  
(University of Toyama)  
Kaori Kobayashi
- 18:00 – 19:30 Banquet

**Wednesday, June 3**

**Annual meeting program**

- 9:45 – 10:00** Terahertz time-domain spectroscopy and Raman scattering of Glassy Polymers  
(Graduate School of Pure and Applied Sciences, University of Tsukuba)  
Yusuke Hashimoto, Tatsuya Mori, Seiji Kojima
- 10:00 – 10:15 Development and Application of Single Shot Optical Pump-THz Probe Spectroscopy  
(Yokohama National Univ.)  
Yasuo Minami, Kaisei Masuda, Kohei Horiuchi, Jun Takeda, Ikufumi Katayama
- 10:15 – 10:30** Terahertz time-domain and low-frequency Raman spectroscopy of Pharmaceutical indomethacin  
(<sup>1</sup>University of Tsukuba, Faculty of Pure and Applied Sciences, <sup>2</sup>Tohoku University, Graduate school of Science)  
Tatsuya Mori<sup>1</sup>, Tomohiko Shibata<sup>1</sup>, Kei Iwamoto<sup>2</sup>, Hiroshi Matsui<sup>2</sup>, Seiji Kojima<sup>1</sup>
- 10:30 – 10:45** Single-molecule surface enhanced Raman spectroscopy for a plasmonic photochemical reaction nitrobenzenethiol to aminobenzenethiol  
(<sup>1</sup>Kagawa University, Faculty of Engineering, <sup>2</sup>JSPS RPD, <sup>3</sup>AIST HRI)  
Yuko S. Yamamoto<sup>1,2</sup>, Yuya Kayano<sup>1</sup>, Tamitake Itoh<sup>3</sup>, Shunsuke nakanishi<sup>1</sup>
- 10:45 – 11:00 Coffee break
- 11:00 – 11:15 Raman imaging of lipid rafts in artificial monolayer membrane  
(<sup>1</sup>ERATO Sodeoka Live Cell Chemistry PJ, <sup>2</sup>JST-CREST, <sup>3</sup>Dept. of Applied Physics, Osaka Univ., <sup>4</sup>RIKEN, <sup>5</sup>ERATO Lipid Active Structure PJ, <sup>6</sup>Dept. of Chemistry, Osaka Univ., <sup>7</sup>Dept. of Chemistry, Kyushu Univ.)  
Jun Ando<sup>1,2,3,4</sup>, Masanao Kinoshita<sup>5,6,7</sup>, Jin Cui<sup>5,7</sup>, Hiroyuki Yamakoshi<sup>1,3</sup>, Kosuke Dodo<sup>1,3</sup>, Katsumasa Fujita<sup>1,2,3</sup>, Michio Murata<sup>5,7</sup>, Mikiko Sodeoka<sup>1,2,4</sup>
- 11:15 – 11:30 Reaction rate analysis under equilibrium conditions utilizing two-dimensional fluorescence lifetime correlation spectroscopy  
(<sup>1</sup>Molecular Spectroscopy Laboratory, RIKEN, <sup>2</sup>RIKEN Center for Advanced Photonics)  
Kunihiko Ishii<sup>1,2</sup>, Chao-Han Cheng<sup>1</sup>, Tahei Tahara<sup>1,2</sup>
- 11:30 – 11:45** Barrierless Reaction Dynamics Investigated by Near-IR Femtosecond Transient Absorption and Femtosecond Stimulated Raman Spectroscopy

(<sup>1</sup>Molecular Spectroscopy Laboratory, RIKEN, <sup>2</sup>Graduate School of Bioscience and Biotechnology, Tokyo Institute of Technology, <sup>3</sup>RIKEN Center for Advanced Photonics)

Shinya Tahara<sup>1,2</sup>, Satoshi Takeuchi<sup>1,3</sup>, Tahei Tahara<sup>1,3</sup>

11:45 – 12:00 Development of broadband and sensitive femtosecond time-resolved circular dichroism spectroscopy by the use of spectral interferometry

(<sup>1</sup>The University of Tokyo, School of Science, <sup>2</sup>The University of Tokyo, Graduate School of Arts and Sciences)

Kotaro Hiramatsu<sup>1</sup>, Takashi Nagata<sup>2</sup>

12:00 – 13:15 Lunch

13:15 – 14:45 Poster session II (Even number)

14:45 – 14:50 Presentation of the Spectroscopical Society of Japan Award 2014

14:50 – 15:25 Award lecture

15:25 – 15:35 Coffee break

15:35 – 15:50 First electronic transition of liquid water on alumina surface studied by variable angle attenuated total reflection far-ultraviolet spectroscopy

(Kwansei Gakuin University)

Takeyoshi Goto, Yukihiro Ozaki

15:50 – 16:05 Observation of CTTS band ATR-FUV: sodium chloride solutions under freeze-and-thaw process

(<sup>1</sup>NARO, <sup>2</sup>Kinki University)

Akifumi Ikehata<sup>1</sup>, Yuka Nishikawa<sup>2</sup>, Yusuke Morisawa<sup>2</sup>

16:05 – 16:20 Raman Spectrum of Polar phonons: Soft Mode of Ferroelectric SrTiO<sub>3</sub> and LO/TO solitoning of Proton-Ordered Ice

(The University of Electro-Communications Graduate School of Informatics and Engineering)

Takeshi Shigenari, Kohji Abe

16:20 – 16:35 Molecular Mechanism of Antifreeze Effect of an Ethylene Glycol Aqueous Solution (Institute for Chemical Research, Kyoto University)

Takafumi Shimoaka, Takeshi Hasegawa

16:35 – 16:40 Closing remarks

## Poster presentation

- P01 Stark and Zeeman effects in highly excited states of Ba atom  
(Department of Physics, Faculty of Science, Toho University)  
Hiroumi Ito, Masayuki Kawamura, Syuntaro Kanno, Tatsuya Minowa, Wei-Guo Jin
- P02 Excitation dynamics of two carotenoids observed by femtosecond time-resolved near-infrared spectroscopy  
(Gakushuin University)  
Masato Anan, Tomohisa Takaya, Koichi Iwata
- P03 Dispersed Fluorescence Spectra of the SiCN  $A^2\Delta - X^2\Pi$  System  
(Hiroshima City University, Graduate School of Information Sciences)  
Masaru Fukushima, Takashi Ishiwata
- P04 Determination of optical property of cell wall in wood by TOF-NIRs  
(Nagoya University)  
Tetsuya Inagaki, Ryunosuke Kitamura, Keiji Konagaya, Satoru Tsuchikawa
- P05 Laser induced amplified spontaneous emission from the  $H\ 1_u(^3P_1)$  ion-pair state of molecular iodine  
(<sup>1</sup>Tokyo University of Science, <sup>2</sup>Tokyo Gakugei University, <sup>3</sup>Hiroshima City University)  
Shoma Hoshino<sup>1</sup>, Mitsunori Araki<sup>1</sup>, Yukio Nakano<sup>2</sup>, Takashi Ishiwata<sup>3</sup>, Koichi Tsukiyama<sup>1</sup>
- P06 Non-destructive firmness evaluation of peach by near-infrared spectroscopy: Analysis of calibration model structure  
(NARO, National Food Research Institute)  
Yasuhiro Uwadaira, Yoshiki Tsukakoshi, Masatoshi Yoshimura, Xuan Luo, Akifumi Ikehata
- P07 Real-Time Observation of Photoionization-induced Water Migration in 5-hydroxyindole-Water Cluster  
(Chemical Resources Laboratory, Tokyo Institute of Technology)  
Ayumi Naito, Mitsuhiko Miyazaki, Masaaki Fujii
- P08 Absorption Properties in the Visible and Near-infrared Bands of Water Vapor  
(Meteorological College)  
Masashi Fukabori, Yuki Mitani
- P09 Direct imaging of rotational wavepacket dynamics in  $^1\Sigma$  and  $^2\Pi$  molecules  
(Tokyo Institute of Technology, Graduate School of Science and Technology)  
Kenta Mizuse, Yasuhiro Ohshima
- P10 Absorption intensity and frequency of fundamental and overtone of OH stretching



- vibration of methanol molecule and hydrogen bonding and solvent effect  
 (<sup>1</sup>National Institute of Technology, Kumamoto College, <sup>2</sup>Josai University, <sup>3</sup>Kwansei Gakuin University)  
 Yoshisuke Futami<sup>1</sup>, Yasushi Ozaki<sup>2</sup>, Yukihiro Ozaki<sup>3</sup>
- P11 Multimodal nonlinear spectroscopic imaging of GOD-42 strain, a new species of green algae  
 (<sup>1</sup>Institute of Applied Physics, University of Tsukuba, <sup>2</sup>Department of Chemistry, School of Science, The University of Tokyo, <sup>3</sup>Graduate School of Life and Environmental Science, University of Tsukuba)  
 Tomoya Ohno<sup>1</sup>, Kei Ishitsuka<sup>1</sup>, Hiroki Segawa<sup>2</sup>, Masaki Yoshida<sup>3</sup>, Makoto Watanabe<sup>3</sup>, Hideaki Kano<sup>1</sup>
- P12 Label-free spectroscopic imaging of rat retina using multimodal and multiphoton microscopy  
 (<sup>1</sup>Graduate School of Pure and Applied Sciences, University of Tsukuba, <sup>2</sup>Department of Chemistry, School of Science, The University of Tokyo, <sup>3</sup>Graduate School of Comprehensive Human Science, University of Tsukuba)  
 Toshihiro Akiyama<sup>1</sup>, Hiroki Segawa<sup>2</sup>, Yuichi Kaji<sup>3</sup>, Tetsuro Oshika<sup>3</sup>, Hideaki Kano<sup>1</sup>
- P13 In-situ spectroscopic observation and kinetic analysis of simulated formation processes of humic substances  
 (Department of Earth and Space Science, Osaka University)  
 Yuki Nakaya
- P14 Multimodal nonlinear spectroscopic imaging of living algae, Aurantiochytrium ~Toward in-vivo visualization of squalene accumulation ~  
 (<sup>1</sup>Institute of Applied Physics, University of Tsukuba, <sup>2</sup>Graduate School of Science, The University of Tokyo, <sup>3</sup>Graduate School of Life and Environment Science, University of Tsukuba)  
 Kei Ishitsuka<sup>1</sup>, Hiroki Segawa<sup>2</sup>, Masahiro Koide<sup>3</sup>, Masaki Yoshida<sup>3</sup>, Makoto Watanabe<sup>3</sup>, Osamu Numata<sup>3</sup>, Hideaki Kano<sup>1</sup>
- P15 High resolution photothermal microscopy: application to 3D multicolor imaging of biological tissues  
 (<sup>1</sup>Advanced Ultrafast Laser Research Center, The University of Electro-Communications, <sup>2</sup>Juntendo University School of Medicine, <sup>3</sup>JST CREST, <sup>4</sup>National Chiao-Tung University, <sup>5</sup>Osaka University)  
 Jun Miyazaki<sup>1,3</sup>, Koshi Kawasumi<sup>1</sup>, Hiromichi Tsurui<sup>2,3</sup>, Takayoshi Kobayashi<sup>1,3,4,5</sup>
- P16 Developments of the techniques for high-sensitive detection of biomolecules using Raman spectroscopy

- (Graduate School of Pharmaceutical Sciences, Tohoku University)  
Takuma Iso, Hirotsugu Hiramatsu, Takahiro Saito, Takakazu Nakabayashi
- P17 In-situ spectroscopic observation and kinetic analysis of color change processes of a leaf of *Cerasus*  
(<sup>1</sup>Life Science course, Department of Biological Sciences, Osaka University, <sup>2</sup>Department of Earth and Science, Osaka University)  
Eri Yamakita<sup>1</sup>, Satoru Nakashima<sup>2</sup>
- P18 Orientation relaxation time of chloroform in ionic liquid as measured by polarized Raman spectroscopy  
(Gakushuin University)  
Shun Inaoka, Koichi Iwata
- P19 Microspectroscopy of single ZnO nanowire using cathodoluminescence microscopy and nonlinear optical microscopy  
(Waseda University)  
Yoshio Kamura, Kohei Imura
- P20 Development of multiplex coherent anti-Stokes Raman scattering microspectroscopic system using a 400-ps microchip YAG laser  
(<sup>1</sup>Graduate School of Pure and Applied Sciences, University of Tsukuba, <sup>2</sup>Department of Chemistry, School of Science, The University of Tokyo, <sup>3</sup>Graduate School of Comprehensive Human Sciences, University of Tsukuba)  
Junya F. Kaneyasu<sup>1</sup>, Kotaro Hiramatsu<sup>2</sup>, Hiroki Segawa<sup>2</sup>, Yuichi Kaji<sup>3</sup>, Hideaki Kano<sup>1</sup>
- P21 Non-linear optical response of single gold nanoparticle on a gold thin film  
(Waseda University)  
Kazunori Moriyama, Kuhei Imura
- P22 Time-resolved IR spectra of triplet cyclopentane-1,3-diyl diradical that has cyano and carbonyl groups  
(<sup>1</sup>University of Tsukuba, Graduate School of Pure and Applied Sciences, <sup>2</sup>University of Hiroshima, Graduate School of Science)  
Shunsuke Kuboki<sup>1</sup>, Shouhei Yoshidomi<sup>2</sup>, Manabu Abe<sup>2</sup>, Taka-aki Ishibashi<sup>1</sup>
- P23 IR imaging of feather  $\beta$ -keratins by a VSFG-detected IR super-resolution microscopy ~polarization dependence of amide I band~  
(Tokyo Institute of Technology, Chemical Resources Laboratory)  
Yukihisa Watase, Kohei Ushio, Masaaki Fujii, Makoto Sakai
- P24 Development and application for nanoIR Spectroscopy with nano scale spatial resolution

- (Nihon Thermal Consulting Co., Ltd.)  
Hanae Kobayashi, Hitomi Ejiri, Norio Urayama
- P25 Heterodyne-detected vibrational sum frequency generation spectroscopy of DPPC phospholipid Langmuir film and Langmuir-Blodgett film  
(University of Tsukuba, Graduate School of Pure and Applied Sciences)  
Naoki Takeshita, Masanari Okuno, Taka-aki Ishibashi
- P26 Raman spectroscopic imaging of brown adipocytes  
(<sup>1</sup>University of Tsukuba, <sup>2</sup>The University of Tokyo)  
Yuki Shimodaira<sup>1</sup>, Toshihiro Akiyama<sup>1</sup>, Hiroki Segawa<sup>2</sup>, Aya Fukuda<sup>1</sup>, Koji Hisatake<sup>1</sup>, Hideaki Kano<sup>1</sup>
- P27 Orientation analysis of thin films of stereocontrolled PNiPAm by heterodyne-detected vibrational sum-frequency generation  
(<sup>1</sup>University of Tsukuba, Graduate school of Pure and Applied Sciences, <sup>2</sup>Fukuoka University Graduate School of Science)  
Kazuharu Fukaya<sup>1</sup>, Masanari Okuno<sup>1</sup>, Kazuaki Rikiyama<sup>2</sup>, Yukiteru Katsumoto<sup>2</sup>, Taka-aki Ishibashi<sup>1</sup>
- P28 In-situ hydrothermal infrared spectroscopic tracing of formation processes of alkaline alteration products of rocks  
(Department of Earth and Space Science, Osaka University)  
Ryota Tomizawa, Satoru Nakashima
- P29 Development of Surface Plasmon Sensor Use Aluminum Thin Film in Far-Ultraviolet region  
(<sup>1</sup>Kwansei Gakuin University, Graduate School of Science and Technology, <sup>2</sup>Institute of Industrial Science, The University of Tokyo, <sup>3</sup>Shizuoka University, Graduate School of Engineering, <sup>4</sup>JST-CREST)  
Takayuki Ryoki<sup>1</sup>, Yoshito Tanaka<sup>2</sup>, Ichiro Tanabe<sup>1</sup>, Takeyoshi Goto<sup>1</sup>, Masakazu Kikawada<sup>3</sup>, Wataru Inami<sup>3,4</sup>, Yoshimasa Kawata<sup>3,4</sup>, Yukihiro Ozaki<sup>1</sup>
- P30 Optical Resolution and Identification of Chiral Molecules by Vibrational Circular Dichroism (VCD) Spectroscopy  
(<sup>1</sup>Graduate School of Science and Engineering, Aoyama Gakuin University, <sup>2</sup>The Open University of Japan)  
Keigo Fujita<sup>1</sup>, Hajime Okajima<sup>1</sup>, Yoshiaki Hamada<sup>2</sup>, Akira Sakamoto<sup>1</sup>
- P31 Development of dual plasma desorption/ionization system for measurement of skin-surface adhesion compounds  
(<sup>1</sup>Tokyo Institute of Technology, Graduate of Energy Sciences, <sup>2</sup>Natioal research Institute of Police Science)

- Mari Aida<sup>1</sup>, Ken Kakegawa<sup>1</sup>, Takahiro Iwai<sup>1,2</sup>, Tomoki Nagoya<sup>2</sup>, Hidekazu Miyahara<sup>1</sup>, Yasuo Seto<sup>2</sup>, Akitoshi Okino<sup>1</sup>
- P32 Infrared spectroscopy on 1-naphthol-piperidine clusters  
(Tokyo Institute of Technology)  
Shun Manita, Toshihiko Shimizu, Mitsuhiko Miyazaki, Masaaki Fujii
- P33 Spectroscopic measurement of dielectric barrier discharge decomposition system for volatile chemical warfare agents  
(<sup>1</sup>Tokyo Institute of Technology Department of Energy Sciences, <sup>2</sup>National Research Institute of Police Science)  
Hiroki Inoue<sup>1</sup>, Yoshitaka Utsunomiya<sup>1</sup>, Takahiro Iwai<sup>2</sup>, Tomoki Nagoya<sup>2</sup>, Hidekazu Miyahara<sup>1</sup>, Yasuo Seto<sup>2</sup>, Akitoshi Okino<sup>1</sup>
- P34 Development of hyper-Raman spectroscopic system using a 30-ps fiber laser source and its application to TiO<sub>2</sub> microparticles  
(<sup>1</sup>College of Engineering Sciences, University of Tsukuba, <sup>2</sup>Institute of Applied Physics, University of Tsukuba)  
Yoshiharu Yamada<sup>1</sup>, Hideaki Kano<sup>2</sup>
- P35 Study of electronic states whose energies shift to higher by hydrogenbonding using attenuated total reflectance in Far-UV region  
(Graduated school of science and engineering, Kinki University)  
Nami Ueno, Yusuke Morisawa
- P36 Probing edge-activated resonant Raman scattering from mechanically-exfoliated MoO<sub>3</sub> nanosheets  
(<sup>1</sup>Tokyo Institute of Technology, <sup>2</sup>RIKEN, <sup>3</sup>University of Washington)  
Keisuke Yoshida<sup>1</sup>, Taka-aki Yano<sup>1,2</sup>, Tomohiro Hayashi<sup>1,2</sup>, Fumio Ohuchi<sup>3</sup>, Masahiko Hara<sup>1,2</sup>
- P37 Collision-induced absorption of oxygen molecule at 630 nm band as studied by cavity ring-down spectroscopy  
(Tokyo Institute of Technology)  
Wataru Kashihara, Atsushi Shoji, Akio Kawai
- P38 Measurement of the temperature dependence of internal energy in crystals using THz-TDS  
(Graduate School of Science, Kobe University)  
Masahiro Tatematsu, Yukihiro Sawada, Takeshi Moriyasu, Toshiro Kohmoto
- P39 Measurement of reactive species in Plasma Bubbled-up Water for sterilization  
(<sup>1</sup>Tokyo Institute of Technology, Interdisciplinary Graduate School of Science and Engineering, <sup>2</sup>Tokyo Institute of Technology, Graduate School of Bioscience and

- Biotechnology, <sup>3</sup>Kobe University, Graduate School of Medicine, <sup>4</sup>Meiji Co.,Ltd)  
Tomihiko Kobayashi<sup>1</sup>, Yosuke Watanabe<sup>1</sup>, Takaya Oshita<sup>1</sup>, Toshihiro Takamatsu<sup>1,3</sup>,  
Hiroki Matsubara<sup>4</sup>, Satoru Oshima<sup>4</sup>, Tetsu Kamiya<sup>4</sup>, Yuriko Matsumura<sup>2</sup>, Hidekazu  
Miyahara<sup>1</sup>, Atsuo Iwasawa<sup>2</sup>, Takeshi Azuma<sup>3</sup>, Akitoshi Okino<sup>1</sup>
- P40 Terahertz Time-Domain Coherent Raman Spectroscopy  
(Research Center for Development of Far-Infrared Region, University of Fukui)  
Shun Nakae, Stefan Funkner, Gudrun Niehues, Takashi Furuya, Kohji Yamamoto,  
Masahiko Tani
- P41 Magnetolectric effect in an antiferromagnet chromium oxide  
(Graduate School of Science, Kobe University)  
T. Shinkai, T. Nishimoto, T. Moriyasu, T. Kohmoto
- P42 Salt effects on lysozyme hydration and Hofmeister effects studied by terahertz  
spectroscopy  
(Inst. of Appl. Phys., Univ. of Tsukuba)  
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- P43 Supersensitive detection of molecular chirality using achiral light and achiral gold  
nanostructures  
(<sup>1</sup>The Graduate University for Advanced Studies and Institute for Molecular  
Science, <sup>2</sup>University of Glasgow  
Shun Hashiyada<sup>1</sup>, Affar Karimullah<sup>2</sup>, Hiromi Okamoto<sup>1</sup>, Malcom Kadodwala<sup>2</sup>)
- P44 Spectroscopic measurement of flow balanced ICP torch for reduction of air-mixture  
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- P45 Surface plasmons modulated by electron beam  
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- P46 Development of droplet ICP-time of flight mass spectrometer and multi-element  
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(Department of Energy Sciences, Tokyo Institute of Technology<sup>1</sup>, School of  
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Shunsuke Hosoda<sup>1</sup>, Mari Aida<sup>1</sup>, Ken Kakegawa<sup>1</sup>, Yukiko Ishihara<sup>1</sup>, Hidekazu  
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- P47 Radiation Measurements of Nitrogen Plasma Freejets at an Atmospheric Pressure  
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- P48 Tracing behavior of hydrocarbon and silica in diatomaceous soil by in-situ hydrothermal infrared spectroscopic observation  
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- P49 Analyses of color change rates of rocks b in-situ visible spectro-colorimetry  
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