

2010 Annual Meeting of the Spectroscopical Society of Japan

The 2010 annual meeting of the spectroscopical society of Japan will be held at the Clock Tower Centennial Hall, Kyoto University, Kyoto (<http://www.kyoto-u.ac.jp/en/clocktower>) from November 18 to 20, 2010. An international symposium on "Spectroscopical Applications to Environment and Energy" will be also included in the program of the 2010 Annual meeting.

November 18

Annual meeting program (1)

10:20-10:25 Opening Remarks

10:25-11:15 [Plenary Lecture]

"Structural analyses of intrinsically disordered proteins and their dynamics"

(Yokohama City University) Yoshifumi Nishimura

11:15-11:30 NMR sensitivity enhancement using fast data sampling

(Osaka University¹, Nara Institute of Science and Technology²) C. Kojima^{1,2}

11:30-11:45 Structure and interaction of RNA aptamer against prion protein in complex with the partial binding peptide

(Kyoto University¹, National Institute of Advanced Industrial Science and Technology²)

©T. Mashima¹, T. Koshida¹, M. Saimura¹, F. Nishikawa², S. Nishikawa², M. Katahira¹

11:45-12:00 The real-time monitoring of the enzymatic reaction of an anti-HIV factor APOBEC3G

(Kyoto University¹, Yokohama City University², Cell-Free Sci³)

©A. Furukawa¹, T. Nagata², R. Morishita³, A. Ryo², A. Takaori¹, M. Katahira¹

12:00-13:30 Luncheon Seminar I

International Symposium on "Spectroscopical Applications to Environment and Energy"

Scope: Spectroscopy is widely used in various areas concerning polymers, semiconductors, functional materials, medicine, pharmacy, etc. In this international symposium, recent advances in spectroscopy and related techniques will be widely discussed with special attention to the topics on "Environment and Energy".

Session 1. Elemental processes in photocatalysis and energy production

[Chair Person: S. Kumazaki (Kyoto University)]

13:30-14:10 Ultrafast spectroscopy of photocatalytic reactions on single crystal TiO₂ surfaces

(University of Pittsburgh, USA) Hrvoje Petek

14:10-14:50 Probing electron transfer at semiconductor interfaces using femtosecond 2D IR spectroscopy

(University of Wisconsin-Madison, USA) Martin Zanni

14:50-15:30 Transient absorption study on bare and dye-sensitized nanocrystalline TiO₂ films

(National Institute of Advanced Industrial Science and Technology, Japan) Ryuji Katoh

15:30-15:50 Break

Session 2. Spectroscopy for environmental and biological materials

[Chair Person: K. Tanaka (Kyoto University)]

15:50-16:30 Using time-resolved THz spectroscopy to study carrier dynamics in TiO₂ nanomaterials
(Yale University, USA) Charles Schmuttenmaer

16:30-17:10 Low-frequency dynamics in the condensed phases studied by pulsed terahertz radiation-application
to molecular science (Kobe University, Japan) Keisuke Tominaga

[General presentation]

17:10-17:25 Dynamics in air of monolayer water on a single crystal TiO₂(110) surface using picosecond VSFG
spectroscopy (Tokyo Institute of Technology) Ken Onda

17:25-17:40 Infrared microspectroscopic imaging of bionanomaterials -An example of diatom silica microstructures-
(Osaka University¹, Thermo Fisher Scientific, K.K.², SII Nanotechnology³, Micro World Service⁴)
Satoru Nakashima¹, Michio Ishikawa¹, Rika Harui², Hana Tsujikawa³, Osamu Oku⁴

17:50-18:50 Welcome reception

November 19

Annual meeting program (2)

9:15- 9:30 Higher Order Conformation of Poly(3- hydroxyalkanoate)s Studied by Terahertz Spectroscopy
(RIKEN¹, Kwansai Gakuin University², The Procter & Gamble Company³)
©H. Hoshina¹, Y. Morisawa², H. Sato², I. Noda³, Y. Ozaki² and C. Otani¹

9:30- 9:45 Rapid detection of foodborne pathogen in fresh vegetable using hyperspectral imaging
(Chulalongkorn University¹, The University of Tokyo²)
©U. Siripatrawan¹, Y. Makino², S. Oshita², Y. Kawagoe²

9:45- 9:50 Short Break

International Symposium program

Session 3. Spectroscopy for environmental gas sensing

[Chair Person: J. Ukon (Horiba Ltd.)]

9:50-10:30 Diode laser-based sensors for environmental monitoring: From low-cost networked sensors to ultra-precision
sensors based on advanced laser technology (Physical Sciences Inc., USA) Mark Allen

10:30-11:10 A compact trace gas sensor based on fiber-coupled CW laser diode cavity ringdown spectroscopy
(Tokai University, Japan) Shigeru Yamaguchi

11:10-11:50 Observation of atmospheric aerosols and trace gases by means of natural, conventional, and laser light
sources (Chiba University, Japan) Hiroaki Kuze

11:50-13:20 Luncheon Seminar II

Session 4. Spectroscopy for magnetic-confined fusion plasmas

[Chair Person: M. Hasuo (Kyoto University)]

13:20-14:00 Modeling of spectroscopic measurements in magnetic confinement fusion plasmas
(CNRS/Université de Provence, France) Yannick Marandet

14:00-14:40 Spectroscopic measurements for magnetic confined fusion plasmas in LHD

(National Institute for Fusion Science, Japan) Motoshi Goto

14:40-16:10 Poster session I (Odd Numbers)

(Award Lectures)

16:10-16:15 Presentation of Award

16:15-17:00 The Spectroscopical Society of Japan Award (2010)

Hideaki Koizumi (Hitachi, Ltd.)

17:00-17:30 The Spectroscopical Society of Japan Award for Young Scientists (2010)

"Development of high spatial-resolution polarization microscopy"

Yuika Saito (Osaka University)

17:30-18:00 The Spectroscopical Society of Japan Award for Young Scientists (2010)

"Vibrational relaxation dynamics of liquid water studied by femtosecond mid-infrared nonlinear spectroscopy"

Satoshi Ashihara (Tokyo University of Agriculture and Technology)

18:10-20:00 Banquet

November 20

Annual meeting program (3)

9:15- 9:30 Vibrational spectroscopic study of regenerating scales

(Tokyo Medical and Dental University¹, PerkinElmer Japan Co, Ltd.², Kanazawa University³,
Osaka University⁴) M. Nara¹, A. Hattori¹, A. Ohnishi², Y. Akatsuka², N. Suzuki³, J. Matsuda⁴

9:30- 9:45 Electric Field Effect on the Infrared Spectra of Nylon11 and 12

(Waseda University) ©H. Isoda, Y. Furukawa

9:45-10:00 Analysis on molecular structure of NPD in an amorphous thin film by Raman spectroscopy

(Fujifilm Co. Ltd.¹, Waseda University²)

©T. Sugiyama¹, M. Nakai¹, H. Fujimura¹, K. Kawato¹, Y. Furukawa²

10:00-10:15 Excitation laser intensity dependence of blinking SERRS

(Kwansei Gakuin University¹, AIST²) ©Y. Kitahama¹, Y. Tanaka¹, T. Itoh², Y. Ozaki¹

10:15-10:30 Direct measurement of back energy transfer in blue phosphorescent system (CBP/FIrpic) by time-resolved optical waveguide spectroscopy

(Fujifilm Corporation¹, Tohoku University²)

©H. Hirayama¹, Y. Sugawara¹, Y. Miyashita¹, M. Mitsuishi², T. Miyashita²

10:30-10:45 Break

10:45-11:00 Enhancement of Photoelectron Emission by Deep-UV Excited Surface Plasmon and Optimization of

Thickness of Aluminum Film

(Shizuoka University¹, JST-CREST²)

©R. Akimoto¹, Y. Watanabe¹, W. Inami^{1,2}, A. Ono^{1,2}, Y. Kawata^{1,2}

11:00-11:15 Terahertz radiation from antiferromagnetic magnons excited by femtosecond laser pulses

(Osaka University) ©J. Nishitani, T. Nagashima, M. Hangyo

- 11:15-11:30 Transport Properties of Free Carriers in Semiconductors Studied by THz Time-domain Magneto-optical Ellipsometry
(Osaka University¹, Murata Manufacturing Co. Ltd.²)
©K. Yatsugi¹, N. Matsumoto^{1,2}, T. Nagashima¹, M. Hangyo¹
- 11:30-11:45 Transmission properties of concave-shaped and trapezoid-shaped hole array on metal film
(Murata Manufacturing Co. Ltd.¹, Kyoto University²) ©T. Kondo¹, K. Takigawa¹, S. Kamba¹, Y. Ogawa²
- 11:45-12:00 Development of labeling strategies and pulse sequences suitable for NMR structural analyses of large proteins
(AIST¹, Harvard Med. Sch.², Yokohama City University³, The University of Tokyo⁴)
©K. Takeuchi^{1,2}, H. Takahashi^{1,3}, I. Shimada^{1,4}, G. Wagner²

12:00-13:00 Lunch

13:00-14:30 Poster session II (Even Numbers)

- 14:30-14:45 Microspectroscopic measurements of metallic nanostructures constructed on DNA nanofibers
(National Institute for Materials Science¹, Osaka Prefecture University²)
H. Nakao¹, H. shiigi², Y. Takeda¹, K. Miki¹
- 14:45-15:00 Nondestructive analysis of quality of mango fruits by using hyperspectral imaging
(The University of Tokyo¹, Kobe University², Bogor Agricultural University³, NEC⁴) A. Isami¹, Y. Makino¹,
S. Oshita¹, Y. Kawagoe¹, S. Kuroki², A. Purwanto³, U. Ahmad³, Sutrisno³,
M. Serizawa⁴, R. Ishiyama⁴, M. Tukada⁴, N. Yasukawa⁴
- 15:00-15:15 Prediction of discoloration rate of broccoli florets by hyperspectral imaging
(The University of Tokyo) Y. Makino, Y. Kosaka, Y. Kawagoe, S. Oshita
- 15:15-15:30 Measurement of halogenous compounds by introduction of ultra small droplet into micro AED
(Tokyo Metropolitan University) N. Hazumu, D. Tamahashi, H. Nakajima, K. Uchiyama
- 15:30-15:45 Awarding ceremony and closing remarks

Poster presentation

- P-1 Temperature dependence of vibrational relaxation of OH bending mode in liquid water
(Tokyo University of Agriculture and Technology) S. Fujioka, S. Ashihara
- P-2 Structural Characterization of a lipid bilayer in nano-space by polarized micro-probe spectroscopy
(Hokkaido University) ©H. Nabika, T. Sumida, K. Murakoshi
- P-3 Terahertz spectroscopy of liquid water in frozen biological samples
(RIKEN¹, Tohoku University², Kyoto University³) ©H. Hoshina¹, A. Hayashi¹, S. Ueno², Y. Ogawa³, C. Otani¹
- P-4 Super-resolution vibrational imaging of TiO₂ particles by simultaneous detection of Raman and hyper-Raman scattering
(The University of Tokyo¹, National Chiao Tung University²) ©K. Matsuzaki¹, R. Shimada¹, H. Hamaguchi^{1,2}
- P-5 Terahertz absorption spectra of α -methyl amino acids
(NTT Microsystem Integration Laboratories) J. Takahashi, Y. Ueno
- P-6 Inhibition of self-association of green fluorescent protein GFP using NMR

(Osaka University) K. Kosami, K. Furuita, C. Kojima

- P-7 Hydration behavior of biomolecules as studied by attenuated total reflection infrared spectroscopy
(Osaka University) Y. Kataoka, N. Kitadai, O. Hisatomi, S. Nakashima
- P-8 Study of Solvatochromism of N-methyl acetoamide and N,N-dimethyl acetoamide in the Liquid Phase by using ATR-FUV Spectroscopy
(Kwansei Gakuin University¹, NARO NFRI², KURABO³)
Y. Morisawa¹, M. Yasunaga¹, A. Ikehata², N. Higashi³, Y. Ozaki¹
- P-9 Sensitivity Enhancement of Solid-State NMR by High-Field Dynamic Nuclear Polarization using Terahertz Wave
(Osaka University¹, University of Fukui², JEOL Ltd.³) K. Ueda¹, Y. Matsuki¹, H. Takahashi¹,
T. Idehara², I. Ogawa², M. Toda^{2,3}, S. Nakamura³, T. Anai³, T. Fujiwara¹
- P-10 Comparison of observed solar spectra with calculated spectra in the visible and near infrared regions
(Meteorological College) M. Fukabori
- P-11 Hydration Structure of Trifluoromethanesulfonate Studied by Infrared Spectroscopy and Quantum Chemical Calculation
(Nagoya University) ©D. Kurniawan, S. Morita, K. Kitagawa
- P-12 The structural analysis of the nucleosome core by NMR spectroscopy
(Yokohama City University¹, Waseda University) Y. Moriwaki¹, M. Sato¹, A. Nagadoi¹,
H. Tachiwana², H. Kurumizaka², Y. Nishimura¹
- P-13 Local temperature measurements of laser-irradiated gold nano-particles by white light scattering spectroscopy
(Osaka University) ©M. Honda, Y. Saito, N. I. Smith, S. Kawata
- P-14 Development of Piezo-Drive Smaller Droplet DIN-ICP and Application for Atomic Emission Spectrometry
(Tokyo Institute of Technology) ©Y. Kaburaki, K. Shigeta, T. Iwai, H. Miyahara, A. Okino
- P-15 Molecular orientations of pentacene thin films investigated by z-polarization Raman microscopy
(Osaka University¹, Kyoto University²) T. Mino¹, Y. Saito¹, T. Minami¹, Y. Hiroyuki², S. Kuwahara¹, S. Kawata¹
- P-16 An analysis of electrostatic interactions mediated by lysine residues in proteins using NMR spectroscopy
(Osaka University¹, NAIST², Osaka Prefectural University³, Kyoto University⁴) Y. Hattori^{1,2}, I. Ohki²,
K. Furuita¹, T. Ikegami¹, H. Fukada³, M. Shirakawa⁴, T. Fujiwara⁴, C. Kojima^{1,2}
- P-17 IR Spectroscopic Study on Phase Transitions of Oleic Acid and Linoleic Acid
(Kwansei Gakuin University¹, Osaka University², Kitasato University³, Keihanna Research Laboratory⁴)
F. Pi¹, F. Kaneko², M. Iwahashi³, M. Suzuki⁴, Y. Ozaki¹
- P-18 A measurement of spectral line parameters of oxygen A band by high resolution Fourier transform spectroscopy
(Toray Research Center Inc.) R. Kumazawa, T. Watanabe
- P-19 Observation of Surface plasmon behavior by electron injection
(Osaka University) Y. Saito, Y. Moriguchi, T. Hamano, T. Ito, S. Kawata
- P-20 Photo-induced damage analysis of living cells for multi-focus CARS microscopy
(Osaka University) ©T. Minamikawa, Y. Murakami, N. Matsumura, H. Niioka, S. Fukushima, T. Araki, M. Hashimoto
- P-21 Laser Remote Spectroscopy for Next Generation Nuclear Fuel I. Back Ground and Summary
(Japan Atomic Energy Agency¹, University of Fukui²) I. Wakaida¹, K. Akaoka¹,

M. Oba¹, Y. Maruyama¹, M. Miyabe¹, H. Otobe¹, H. Niki²

- P-22 Nanoscale heterogeneity in acrylate polymer films evaluated with single molecule tracking
(Osaka University¹, PRESTO JST², Toyama Prefectural University³) ©K. Maeda¹, S. Ito^{1,2}, S. Takei³, H. Miyasaka¹
- P-23 Laser Remote Spectroscopy for Next Generation Nuclear Fuel II. Determination of calibration curve for impurity in uranium by laser induced breakdown spectroscopy
(Japan Atomic Energy Agency) K. Akaoka, Y. Maruyama, M. Oba, M. Miyabe, H. Otobe, I. Wakaida
- P-24 Sensitivity enhancement of NMR using photo-CIDNP
(Osaka University¹, Nara Institute of Science and Technology²)
©H. Sasahara¹, Y. Matsuki¹, K. Furuita¹, C. Kojima^{1,2}, T. Fujiwara¹
- P-25 Laser Remote Spectroscopy for Next Generation Nuclear Fuel III. Emission characteristics of Double pulse LIBS
(Japan Atomic Energy Agency) M. Oba, Y. Maruyama, K. Akaoka, M. Miyabe, I. Wakaida
- P-26 Development of Droplet DIN-microplasma device for elemental analysis
(Tokyo Institute of Technology) ©Y. Negishi, Y. Nagata, Y. Takahashi, K. Shigeta, H. Miyahara, A. Okino
- P-27 Laser Remote Spectroscopy for Next Generation Nuclear Fuel IV. Absorption Spectroscopy for Isotope Analysis
(Japan Atomic Energy Agency) M. Miyabe, M. Oba, H. Iimura, K. Akaoka, Y. Maruyama, I. Wakaida
- P-28 NMR analysis for histidine kinase like domain of higher plant phytochrome
(NAIST¹, Osaka University², Tokyo Metropolitan University³, MITILS⁴, NIAS⁵, Nagoya University⁶)
Y. Nishigaya^{1,2}, JG. Jee^{1,3}, R. Tanaka⁴, T. Kohno⁴, K. Furuita^{1,2}, R. Kurata¹,
Y. Fukao¹, E. Katoh^{5,6}, M. Takano⁵, T. Yamazaki⁵, C. Kojima^{1,2}
- P-29 High sensitive, high resolution SHG imaging of SAM on Pt substrate via radially polarized beam excitation
(Osaka University¹, Hyogo Prefectural University²) ©H. Niioka¹, K. Ashida¹, K. Yoshiki², T. Araki¹, M. Hashimoto²
- P-30 Fast Raman spectral imaging by multi-focus confocal Raman microspectroscopy
(The University of Tokyo¹, National Chiao Tung University²) ©M. Okuno, H. Hamaguchi^{1,2}
- P-31 Dynamic observation of apoptotic cells using Raman microscopy
(Osaka University¹, JST², RIKEN³) ©M. Okada¹, K. Fujita^{1,2}, N. I. Smith¹, S. Kawata^{1,3}
- P-32 Influence of Mixture Oxygen Concentration on Surface Hydrophilization using Atmospheric Damage-Free Linear Plasma Source
(Tokyo Institute of Technology) ©M. Shibata, R. Sasaki, H. Hirai, H. Miyahara, A. Okino
- P-33 Charge Carrier Dynamics in Crystalline Solid State Materials using Pulsed Terahertz Spectroscopy
(Kobe University) ©A. K. G. Tapia, C. Ponseca Jr., T. Uchino, K. Tominaga
- P-34 Direct Determination of the Insulin-Insulin Receptor Interface Using Transferred Cross-Saturation Experiments
(Ajinomoto Co. Inc.¹, JBIC², AIST³, The University of Tokyo⁴) T. Nakamura^{1,2,3}, S. Igarashi¹,
H. Takahashi³, M. Takahashi¹, N. Shimba^{1,2,3}, E. Suzuki^{1,2}, I. Shimada^{3,4}
- P-35 High-resolution imaging in liquid by electron-beam excitation assisted optical microscope
(Shizuoka University¹, Hamamatsu University School of Medicine², CREST³)
©W. Inami^{1,2}, Y. Nawa¹, A. Ono^{1,2}, A. Miyakawa^{1,2}, Y. Kawata^{1,2}, S. Terakawa^{2,3}
- P-36 Elucidation of the transport mechanism of the major facilitator superfamily transporter LacY

- (The University of Tokyo¹, AIST²) ©D. Furukawa¹, C. Yoshiura¹, A. Machiyama¹, Y. Minato¹, T. Ueda¹, I. Shimada^{1,2}
- P-37 Tracking of gold nanoparticles for enhanced Raman analysis of intracellular biomolecules
(JSPS¹, Osaka University², JST³, RIKEN⁴) ©J. Ando¹, H. Kasai², K. Fujita^{2,3}, N. Smith^{2,3}, S. Kawata^{2,4}
- P-38 NMR studies on the six domain of Six3 (Yokohama City University¹, Jichi Medical University²)
H. Shimojo¹, H. Okamura¹, A. Nagadoi¹, K. Ikeda², K. Kawakami², Y. Nishimura¹
- P-39 Adsorption states and reactions of nitrogen dioxide on low temperature ice surface (Hiroshima University) A. Susa
- P-40 Three-dimensional orientation imaging of liquid crystal molecules by polarization controlled CARS microscopy
(Osaka University) K. Ikeda, H. Nioka, M. Hashimoto, T. Araki
- P-41 Tip-enhanced microscopy and spectroscopy assisted by tip-heating
(RIKEN¹, Osaka University²) N. Hayazawa¹, A. Tarun¹, T. Yano², S. Kawata^{1,2}
- P-42 Phosphorylation dependent intramolecular interaction revealed by NMR might regulate ER-Golgi shuttling of CERT
(JBIC¹, AIST², Yokohama City University³, NIID⁴, The University of Tokyo⁵)
©T. Sugiki¹, H. Takahashi^{2,3}, K. Takeuchi², K. Hanada⁴, I. Shimada^{2,5}
- P-43 Efficient electro-optic sampling detection of THz wave with Cherenkov-type phase matching
(University of Fukui¹, University of Nizhny Novgorod²)
©K. Horita¹, T. Kinoshita¹, C. T. Que¹, M. Bakunov², K. Yamamoto¹, M. Tani¹
- P-44 Characterization of Damage-Free Multi-Gas Plasma Jet and Application for Sterilization
(Tokyo Institute of Technology) ©T. Takamatsu, H. Hirai, R. Sasaki, K. Shigeta, H. Miyahara, A. Okino