

# Program

## Day 1 (Nov. 15, Tue.)

9:30~12:00 **Tutorial course in Japanese**

Takahisa Ikegami  
Nobuaki Matsumori  
Takehiko Terao

13:00~13:40 **Chairperson Ichio Shimada (The University of Tokyo)**

**ML-01** Fifty Years of NMR in Japan

**E** Yoji Arata

13:40~14:20 **Chairperson Kazuyuki Akasaka (Kinki University)**

**ML-02** Characterization of transient protein folding and unfolding processes by NMR relaxation dispersion

**E**

○ Peter E. Wright (Department of Molecular Biology, The Scripps Research Institute, La Jolla, California, USA)

14:20~15:00 **Chairperson Hideo Akutsu (Osaka University)**

**ML-03** Order-disorder transitions in IscU, the scaffold protein for iron-sulfur cluster assembly and delivery

**E**

Jin Hae Kim<sup>1</sup>, Ziqi Dai<sup>1,2</sup>, Kai Cai<sup>1,3</sup>, Ronnie O. Frederick<sup>1</sup>, Darius C.-F. Chow<sup>1</sup>, Marco Tonelli<sup>1,4</sup>,  
○ John L. Markley<sup>1,2,3,4</sup> (<sup>1</sup>Department of Biochemistry, <sup>2</sup>Graduate Program in Biophysics, <sup>3</sup>Interdepartmental Program in Biochemistry, <sup>4</sup>National Magnetic Resonance Facility at Madison, University of Wisconsin-Madison, Madison, WI, USA)

15:20~16:00 **Chairperson Takehiko Terao**

**ML-04** Applications of Stable Isotopes for Protein NMR

**E**

Masatsune Kainosho<sup>1,2</sup> (<sup>1</sup>Structural Biology Research Center, Graduate School of Science, Nagoya Univ, Japan, <sup>2</sup>Center for Priority Areas, Tokyo Metropolitan Univ, Japan)

16:00~16:40 **Chairperson Fumiya Mitsumori (National Institute for Environmental Studies)**

**ML-05** "What's next in fMRI/MRI?"

**E**

Seiji Ogawa<sup>1,2</sup> (<sup>1</sup>Tohoku Fukushi University, Japan, <sup>2</sup>Kansei Fukushi Research Center, Japan)

16:40~17:30 **Chairperson Isao Ando**

**ML-06** The Importance of the Fourier Transformation in Spectroscopy. From Monsieur Fourier's Calculus to Medical Imaging

**E**

○ Richard R. Ernst (Laboratory of Physical Chemistry, ETH Zürich, Switzerland)

## Day 2 (Nov. 16, Wed.)

9:30~10:30 **Chairperson Koichi Kato (National Institute of Natural Sciences)**

**YIL-01** Side-chain dynamics of hydrogen bonds and ion pairs

**E**

○ Junji Iwahara (Department of Biochemistry and Molecular Biology, Sealy Center for Structural Biology and Molecular Biophysics, University of Texas Medical Branch, USA)

**YIL-02** Structure of the CCA-bulge region of prohead RNA of bacteriophage phi29

**E**

Elena Harjes<sup>1</sup>, Aya Kitamura<sup>1</sup>, Wei Zhao<sup>2</sup>, Marc Morais<sup>3</sup>, Paul J. Jardine<sup>2</sup>, Shelley Grimes<sup>2</sup>, Hiroshi Matsuo<sup>1</sup> (<sup>1</sup>Department of Biochemistry, Molecular Biology and Biophysics, <sup>2</sup>Department of Diagnostic Biological Sciences, University of Minnesota, USA, <sup>3</sup>Department of Biochemistry and Microbiology, University of Texas Medical Branch at Galveston, USA)

10:30~11:30 **Chairperson Toshifumi Hiraoki (Hokkaido University)**

**YIL-03** Stable Isotopic Labeling of Proteins for Biomolecular NMR in Post-structural Genomics Era

**E**

○ Hideo Iwai, Jesper S. Oeemig, A. Sesilja Aranko (Research Program in Structural Biology and Biophysics, Institute of Biotechnology, University of Helsinki, Finland)

**YIL-04** Misfolding Reactions and structures in self-assembled Alzheimer's  $\beta$ -amyloid and graphene-related carbon nano-materials

**E**

○ Yoshitaka Ishii (Department of Chemistry and 2Center for Structural Biology, University of Illinois at Chicago, USA)

12:05~12:55 **Luncheon Seminar**

Parallel Receivers and Compressive Sensing in Multidimensional NMR

Ěricks Kupĉe (Agilent Technologies, UK)

13:00~15:00 **Poster Session**

15:10~15:50 **Chairperson Toshimichi Fujiwara (Osaka University)**

**L-01** MAGIC SHIMMING: gradient shimming under magic angle sample spinning

**E**

○ Yusuke Nishiyama, Yu Tsutsumi, Hiroaki Utsumi (JEOL RESONANCE Inc., Japan)

**L-02** Crystal structures of three new  $\text{AlPO}_4$  high-pressure phases from powder X-ray diffraction, NMR and first-principles calculation, and their unique J coupling characteristics

**E**

○ Xianyu Xue, Masami Kanzaki (Institute for Study of the Earth's Interior, Okayama Univ., Japan)

15:50~16:30 **Chairperson Daisuke Kohda (Kyushu University)**

**L-03** Structural fluctuation of heme oxygenase regulates heme degradation process

**E**

○ Erisa Harada<sup>1</sup>, Masakazu Sugishima<sup>2,3</sup>, Jiro Harada<sup>2</sup>, Masato Noguchi<sup>2</sup>, Keiichi Fukuyama<sup>4</sup>, Kenji Sugase<sup>1</sup> (<sup>1</sup>Bioorg. Res. Inst., Suntory Found. for Life Sci., Japan, <sup>2</sup>Dept. of Med. Biochem., Kurume Univ. Sch. of Medicine, Japan, <sup>3</sup>Dept. of Biochem. and Mol. Biol., Univ. of Chicago, USA, <sup>4</sup>Dept. of Biol. Sci., Grad. Sch. of Sci., Osaka Univ., Japan)

**L-04** Conformational transition and intermolecular interaction of amyloid  $\beta$  molecules promoted on ganglioside clusters

**E**

○ Maho Yagi-Utsumi<sup>1,2</sup>, Koichi Kato<sup>1,2</sup> (<sup>1</sup>National Institutes of Natural Sciences, Okazaki Institute for Integrative Bioscience, Japan, <sup>2</sup>Graduate School of Pharmaceutical Sciences, Nagoya City University, Japan)

16:40~17:20 **Chairperson Chojiro Kojima (Osaka University)**

**L-05** Use of NMR to show that the L16P Charcot-Marie-Tooth disease mutation results in a disrupted transmembrane helix in peripheral myelin protein 22

**E**

○ Masayoshi Sakakura<sup>1,2</sup>, Arina Hadziselimovic<sup>1</sup>, Hideo Takahashi<sup>2</sup>, Charles R. Sanders<sup>1</sup>  
(<sup>1</sup>Department of Biochemistry and Center for Structural Biology, Vanderbilt University School of Medicine, USA, <sup>2</sup>Department of Supramolecular Biology, Graduate School of Nanobioscience, Yokohama City University, Japan)

**L-06** Lanthanides for structural Biology by NMR and EPR Spectroscopy

**E**

○ Hiromasa Yagi<sup>1</sup>, Thomas Huber<sup>1</sup>, Xinying Jia<sup>1</sup>, Bim Graham<sup>2</sup>, Daniella Goldfarb<sup>3</sup>, Gottfried Otting<sup>1</sup> (<sup>1</sup>Research School of Chemistry, Australian National University, Australia, <sup>2</sup>Medical Chemistry and Drug Action, Monash Institute of Pharmaceutical Sciences, Australia, <sup>3</sup>Department of Chemical Physics, Weizmann Institute of Science, Israel)

17:20~18:00 **Chairperson Yutaka Ito (Tokyo Metropolitan University)**

**L-07** Spectral Reconstruction by Maximum Likelihood Frequency Maps and Principal Component Linear Prediction

**E**

○ Frank Delaglio (NMR Science Inc., USA)

**L-08** Detecting the 'Afterglow' of <sup>13</sup>C NMR in Proteins Using Multiple Receivers

**E**

○ Ěriks Kupče<sup>1</sup>, Lewis E. Kay<sup>2</sup>, Ray Freeman<sup>3</sup> (<sup>1</sup>Agilent Technologies, UK, <sup>2</sup>Departments of Molecular Genetics, Biochemistry and Chemistry, University of Toronto, Canada, <sup>3</sup>Jesus College, Cambridge University, UK)

## Day 3 (Nov. 17, Thu.)

9:30~10:10 **Chairperson Keiichi Kawano (Hokkaido University)**

- L-09**  
**E** **Stabilization of proteins by choline-*O*-sulfate during preparation and NMR measurement**  
○ Kaori Wakamatsu<sup>1</sup>, Haimei Wang<sup>1</sup>, Masahiko Takahashi<sup>1</sup>, Kazuma Nakazawa<sup>1</sup>, Mitsuhiko Yoshizawa<sup>1</sup>, Tetsuro Demura<sup>1</sup>, Kazuo Hosoda<sup>1</sup>, Shin-ichi Terawaki<sup>1</sup>, Nobukazu Nameki<sup>1</sup>, Kenji Sugase<sup>2</sup> (<sup>1</sup>Graduate School of Engineering, Gunma University, Japan, <sup>2</sup>Suntory Institute for Bioorganic Research, Japan)
- L-10**  
**E** **SAIL aromatic CH TROSY to investigate larger proteins and protein complexes**  
○ Yohei Miyanoiri<sup>1</sup>, Mitsuhiro Takeda<sup>1</sup>, JunGoo Jee<sup>2</sup>, Akira M. Ono<sup>2,3</sup>, Kosuke Okuma<sup>2,3</sup>, Tsutomu Terauchi<sup>2,3</sup>, Masatsune Kainosho<sup>1,2</sup> (<sup>1</sup>Structural Biology Research Center, Graduate School of Science, Nagoya University, Japan, <sup>2</sup>Center for Priority Areas, Tokyo Metropolitan University, Japan, <sup>3</sup>SAIL Technologies Co., Inc., Japan)

10:10~10:50 **Chairperson Michio Murata (Osaka University)**

- IL-01**  
**E** **NMR of Natural Products at the Nanomole-Scale**  
○ Tadeusz F. Molinski<sup>1,2</sup>, Doralyn S. Dalisay<sup>1</sup>, Brandon I. Morinaka<sup>1</sup> (<sup>1</sup>Department of Chemistry and Biochemistry, <sup>2</sup>Skaggs School of Pharmacy and Pharmaceutical Sciences, University of California, San Diego, USA)

11:00~11:40 **Chairperson Mitsuhiko Ikura (Ontario Cancer Institute / University of Toronto)**

- IL-02**  
**E** **Structural insights into the binding of AIP4 WW2 domain and LMP2A PY motifs**  
Seung-Hyeon Seok, Sung Jean Park, Min-Duk Seo, Ji-hun Kim, Sung Jean Park, Min-Jung Cha, ○ Bong-Jin Lee (Research Institute of Pharmaceutical Sciences, College of Pharmacy, Seoul National University, Korea)

11:40~12:20 **Chairperson Shigenobu Hayashi (The National Institute of Advanced Industrial Science and Technology)**

- L-11**  
**E** **Structure and orientation of membrane associated peptides as revealed by chemical shift oscillation analysis in the solid-state NMR**  
○ Akira Naito<sup>1</sup>, Atsushi Tsutsumi<sup>1</sup>, Namsrai Jakhlantugs<sup>1</sup>, Atsushi Kira<sup>2</sup>, Masako Umeyama<sup>1</sup>, Izuru Kawamura<sup>1</sup>, Kazuyoshi Ueda (<sup>1</sup>Graduate School of Engineering, Yokohama National University, Japan, <sup>2</sup>Research and Development Division, ULVAC Inc., Japan)
- L-12**  
**E** **Development of a DNP-Enhanced High-Resolution Solid-State NMR System and Its Applications**  
○ Fumitaka Horii<sup>1,2</sup>, Toshitaka Idehara<sup>1</sup>, Yutaka Fujii<sup>1</sup>, Isamu Ogawa<sup>1</sup>, Akifumi Horii<sup>2</sup>, George Entzminger<sup>3</sup>, F. David Doty<sup>3</sup> (<sup>1</sup>Research Center for Development of Far-Infrared Region, University of Fukui, Japan, <sup>2</sup>Phi Creative, Inc., Japan, <sup>3</sup>Doty Scientific, Inc., USA)

13:50~14:30 **Chairperson Masato Katahira (Kyoto University)**

- L-13**  
**E** **Application of the paramagnetic lanthanide probe using a tag: structural analysis, ligand screening, and signal assignment**  
Tomohide Saio, ○ Fuyuhiko Inagaki (Faculty of Advanced Life Science, Hokkaido University, Japan)
- L-14**  
**E** **Real-time NMR monitoring of refolding kinetics of ribonuclease A on the order of seconds enabled by a recycled stopped-flow system for temperature jump**  
○ Kazuhiko Yamasaki<sup>1</sup>, Yuji Obara<sup>2</sup>, Manabu Hasegawa<sup>3</sup>, Hideki Tanaka<sup>3</sup>, Tomoko Yamasaki<sup>1</sup>, Tsuyoshi Wakuda<sup>3</sup>, Michiya Okada<sup>4</sup>, Takamitsu Kohzuma<sup>2</sup> (<sup>1</sup>Biomedical Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Japan, <sup>2</sup>Institute of Applied Beam Science, Ibaraki University, Japan, <sup>3</sup>Hitachi Research Laboratory, Hitachi, Ltd., Japan, <sup>4</sup>Tsukuba Innovation Arena, National Institute of Advanced Industrial Science and Technology (AIST), Japan)

14:30~15:10 **Chairperson Tetsuo Asakura (Tokyo University of Agriculture and Technology)**

**HL** Journey of in vivo NMR to MRI – special focus on T<sub>2</sub> and iron in human brain  
**E** ○ Fumiyuki Mitsumori (National Institute for Environmental Studies)

15:20~16:00 **Chairperson Makoto Demura (Hokkaido University)**

**L-15** Solid-State NMR Enhanced by Helium-Cooling and  $\gamma$ -Spinning Dynamic Nuclear  
**E** Polarization at 14 T and 30 K  
○ Yoh Matsuki<sup>1</sup>, Keisuke Ueda<sup>1</sup>, Toshitaka Idehara<sup>2</sup>, Ryosuke Ikeda<sup>2</sup>, Kosuke Kosuga<sup>2</sup>, Isamu Ogawa<sup>2</sup>, Shinji Nakamura<sup>3</sup>, Mitsuru Toda<sup>3</sup>, Takahiro Anai<sup>3</sup>, Toshimichi Fujiwara<sup>1</sup> (<sup>1</sup>Institute for Protein Research, Osaka University, Japan, <sup>2</sup>Research Center for Development of Far-Infrared Region, University of Fukui, Japan, <sup>3</sup>JEOL RESONANCE Inc., Japan)

**L-16** Control of spins free from frequency-dependent phase errors  
**E** ○ Kazuyuki Takeda, Yasuto Noda, K. Takegoshi (Division of Chemistry, Graduate School of Science, Kyoto University, Japan)

16:00~16:40 **Chairperson Kiyonori Takegoshi (Kyoto University)**

**IL-03** Characterizing Backbone and Side-Chain Mobility by Solid-State NMR  
**E** ○ Matthias Ernst<sup>1</sup>, Paul Schanda<sup>2</sup>, Beat H. Meier<sup>1</sup> (<sup>1</sup>Physical Chemistry, ETH Zurich, Switzerland, <sup>2</sup>Institut de Biologie Structurale, CNRS-CEA, France)

16:50~17:30 **Chairperson Yoshifumi Nishimura (Yokohama City University)**

**L-17** Weak and transient interaction underlying the transcriptional corepressor SHARP/SMRT  
**E** complex  
○ Masaki Mishima<sup>1</sup>, Teppei Kanaba<sup>1</sup>, Ayaho Kobayashi<sup>2</sup>, Yutaka Ito<sup>1</sup>, Suzuka Mikami<sup>1</sup> (<sup>1</sup>Graduate school of Science and Engineering, <sup>2</sup>Department of chemistry, Tokyo Metropolitan University, Japan)

**L-18** Domain orientation dynamics revealed by alignment induced TROSY shift changes  
**E** ○ Shin-Ichi Tate<sup>1</sup>, Jun-ichi Uewaki<sup>1</sup>, Naoko Utsunomiya-Tate<sup>2</sup> (<sup>1</sup>Department of Mathematics and Life Sciences, Hiroshima University, Japan, <sup>2</sup>Research Institute of Pharmaceutical Sciences, Musashino University, Japan)

17:30~18:10 **Chairperson Ichio Shimada (The University of Tokyo)**

**IL-04** New NMR Experiments for Challenging Proteins  
**E** ○ Gerhard Wagner (Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School, USA)

## Day 4 (Nov. 18, Fri.)

### 9:30~10:30 Chairperson Yasuhiko Yamamoto (University of Tsukuba)

- L-19**  
**E** Scalable spin amplification on hyperpolarized nuclei  
○ Makoto Negoro, Kenichiro Tateishi, Akinori Kagawa, Masahiro Kitagawa (Graduate School of Engineering Science, Osaka University, Japan)
- L-20**  
**E** Spin polarization of salt nuclei by optical pumping of Cs atoms and laser heating of Cs salt  
○ Kiyoshi Ishikawa (Graduate School of Material Science, University of Hyogo, Japan)
- L-21**  
**E** New Insights into Cross-linking Structures of Boric Acid Doped in Poly (vinyl alcohol)  
○ Kazuhiko Yamada<sup>1</sup>, Kenzo Deguchi<sup>2</sup>, Tadashi Shimizu<sup>2</sup>, Shinji Ando<sup>1</sup>, Hideki Kamada<sup>3</sup>, Toshiaki Kobayashi ( <sup>1</sup>Graduate School of Science and Engineering, Tokyo Institute of Technology, Japan, <sup>2</sup>National Institute for Materials Science, Japan, <sup>3</sup>KURARAY CO., LTD., Japan)

### 10:30~11:10 Chairperson Atsushi Asano (National Defense Academy)

- L-22**  
**E** <sup>1</sup>H spin diffusion solid state NMR analysis of the crystalline structures of alanine oligomers  
○ Koji Yazawa<sup>1</sup>, Kenta Miyazawa<sup>1</sup>, Takuya Ohata<sup>1</sup>, Yusuke Nishiyama<sup>2</sup>, Katsuyuki Nishimura<sup>3</sup>, Tetsuo Asakura<sup>1</sup> ( <sup>1</sup>Department of Biotechnology, Tokyo University of Agriculture and Technology, Japan, <sup>2</sup>Jeol Resonance, NMR Company, Japan, <sup>3</sup>Institute for Molecular Science, Japan)
- L-23**  
**E** Characterization of Microbial Poly (  $\epsilon$ -L-lysine) and Its Polymer Blend Films and Hydrogels by Solid-state NMR  
○ Shiro Maeda<sup>1</sup>, Ko-Ki Kunimoto<sup>2</sup> ( <sup>1</sup>Division of Applied Chemistry and Biotechnology, Graduate School of Engineering, University of Fukui, Japan, <sup>2</sup>Division of Material Engineering, Graduate School of Natural Science and Technology, Kanazawa University, Japan)

### 11:10~11:50 Chairperson Kenji Sugase (Suntory Foundation for Life Sciences)

- L-24**  
**E** NMR studies on the Structure/Dynamics of PHB depolymerase and its interaction with substrates  
○ Satoru Watanabe<sup>1</sup>, Hua Li<sup>1</sup>, Naoya Tochio<sup>1</sup>, Hideki Abe<sup>2</sup>, Tomohiro Hiraishi<sup>3</sup>, Masahiro Fujita<sup>3</sup>, Mizuo Maeda<sup>3,4</sup>, Takanori Kigawa<sup>1,5</sup> ( <sup>1</sup>RIKEN Systems and Structural Biology Center, Japan, <sup>2</sup>RIKEN Biomass Engineering Program, Japan, <sup>3</sup>RIKEN Bioeng. Lab., Japan, <sup>4</sup>Grad. Sch. of Frontier Sci., Univ. of Tokyo, Japan, <sup>5</sup>Grad. Sch. Sci. and Eng., Tokyo Inst. Tech., Japan)
- L-25**  
**E** Contribution of NMR studies upon constructing SAHG, a database of predicted protein structures from human genome.  
○ Hidekazu Hiroaki<sup>1,2,3</sup>, Natsuko Goda<sup>1,2,3</sup>, Takeshi Tenno<sup>1,2</sup>, Chieko Motono<sup>3,4</sup>, Kentaro Tomii<sup>3,4</sup>, Kana Shimizu<sup>3,4</sup>, Kengo Kinoshita<sup>3,5</sup>, Motonori Ota<sup>3,6</sup> ( <sup>1</sup>Graduate School of Science, Nagoya University, Japan, <sup>2</sup>Graduate School of Medicine, Kobe University, Japan, <sup>3</sup>Institute for Bioinformatics Research and Development (BIRD), Japan Science and Technology Agency (JST) IRD, Japan, <sup>4</sup>Computational Biology Research Center (CBRC), National Institute of Advanced Industrial Science and Technology (AIST), Japan, <sup>5</sup>Graduate School of Information Science, Tohoku University, Japan <sup>6</sup>Graduate School of Information Science, Nagoya University, Japan)

### 12:50~14:50 Poster Session

15:00~15:40 **Chairperson Gota Kawai (Chiba Institute of Technology)**

**L-26** NMR analyses of aggregated proteins

**J**

○ Hiroaki Terasawa<sup>1</sup>, Tatsuichiro Tsuji<sup>1</sup>, Norihito Ishida<sup>1</sup>, Yusuke Tsuchiya<sup>1</sup>, Masahiro Taniguchi<sup>1</sup>, Makoto Hirakane<sup>1</sup>, Sosuke Yoshinaga<sup>1</sup>, Kaori Esaki<sup>1</sup>, Etsuko Toda<sup>2</sup>, Yuya Terashima<sup>2,3</sup>, Kouji Matsushima<sup>2</sup> (<sup>1</sup>Fac. Life Sci., Kumamoto Univ., Japan, <sup>2</sup>Grad. Sch. Med., Univ. Tokyo, Japan, <sup>3</sup>ECI, Inc., Japan)

**L-27** <sup>7</sup>Li/<sup>19</sup>F solid-state NMR of LiF formation at electrode/electrolyte interface in lithium ion battery

**J**

○ Miwa Murakami<sup>1</sup>, Hisao Yamashige<sup>1</sup>, Hajime Arai<sup>1</sup>, Yoshiharu Uchimoto<sup>2</sup>, Zenpachi Ogumi<sup>1</sup> (<sup>1</sup>Office of Society-Academia Collaboration for Innovation, Kyoto Univ, Japan, <sup>2</sup>Graduate School of Human and Environmental Studies, Kyoto Univ, Japan)

15:40~16:20 **Chairperson Hideo Takahashi (Yokohama City University)**

**L-28** Hydration and Temperature Dependence of <sup>13</sup>C and <sup>1</sup>H NMR Spectra of DMPC Phospholipid Membrane and Complete Resonance Assignment of its Crystalline State

**J**

○ Kaoru Nomura<sup>1</sup>, Masami Lintuluoto<sup>2</sup>, Kenichi Morigaki<sup>3</sup> (<sup>1</sup>Suntory Foundation for Life Sciences, Bioorganic Research Institute, Japan, <sup>2</sup>Department of Environmental Information, Kyoto Prefectural University, Japan, <sup>3</sup>Research Center for Environmental Genomics, Kobe University, Japan)

**L-29** Analytical and experimental examinations of RF field in dielectric samples at high field

**J**

○ Hidehiro Watanabe (Biological Imaging and Analysis Section, Center for Environmental Measurement and Analysis, National Institute for Environmental Studies, Japan)

16:20~17:20 **Chairperson Ei-ichiro Suzuki (Ajinomoto Co., Inc.)**

**L-30** Development of an MRI system using a high *T<sub>c</sub>* bulk superconducting magnet

**J**

○ Takashi Nakamura<sup>1</sup>, Kyohei Ogawa<sup>2</sup>, Yasuhiko Terada<sup>2</sup>, Katsumi Kose<sup>2</sup>, Tomoyuki Haishi<sup>3</sup> (<sup>1</sup>Molecular Characterization Team, RIKEN, Japan, <sup>2</sup>Institute of Applied Physics, University of Tsukuba, Japan, <sup>3</sup>MRTechnology, Japan)

**L-31** NMR Difference Spectroscopy and its application to GPI glycan

**J**

○ Jun Uzawa<sup>1,3</sup>, Shinya Hanashima<sup>1</sup>, Yumiko Kubota<sup>2</sup>, Hiroko Seki<sup>3</sup>, Yoshiki Yamaguchi<sup>1</sup> (<sup>1</sup>Structural Glycobiology Team, RIKEN ASI, Japan, <sup>2</sup>Institute of Microbial Chemistry, Tokyo, Japan, <sup>3</sup>Chemical Analysis Center, Chiba University, Japan)

**L-32** Research on Weak-Interaction between Metallic Ion and Water by means of NMR and pH-meter

**J**

○ Naoya Nakagawa<sup>1</sup>, Masanori Okazaki<sup>2</sup>, Motohiro Nishio<sup>3</sup>, Toshio Yamazaki<sup>4</sup>, Kayoko Nagashima<sup>4</sup>, Jun Uzawa<sup>4,5</sup>, Hiroko Seki<sup>5</sup>, Yumiko Kubota<sup>6</sup> (<sup>1</sup>University of Electro-communications, Japan, <sup>2</sup>University of Tokyo Agriculture and Technology, Japan, <sup>3</sup>Institute of CHPI, Japan, <sup>4</sup>RIKEN, Japan, <sup>5</sup>Chiba University, Japan, <sup>6</sup>Institute of Microbial Chemistry)