

8th Astrobiology Workshop

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Organized by

Japan AstroBiology Network

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in the Universe: Collaboration between Astronomy and Spectroscopy (PI Masatoshi Ohishi),
Institute of Space and Astronautical Science, JAXA

Organizing Committee

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Workshop Program

Friday, 27 November, 2015

- 13:00 - 13:10 **Opening Remarks**
- 13:10 - 13:40 **Steven Charnley** (NASA Goddard), Chemistry of interstellar medium and comets (invited)
- 13:40 - 14:10 **Martin Cordiner** (NASA Goddard), ALMA observations of Titan: Complex organic chemistry in a primitive planetary atmosphere (invited)
- 14:10 - 14:35 **Kensei Kobayashi** (Yokohama National Univ.), Cosmic-rays induced synthesis of complex amino acid precursors in planetary atmospheres and in interstellar ices.
- 14:35 - 15:00 **Akihiko Yamagishi** (Tokyo Univ. Pharmacy Life Sci.), LDM (Life Detection Microscope): In situ imaging of living cells on surface of Mars
- 15:00 - 16:00 **Poster session with coffee**
- 16:00 – 16:30 **Joseph Kirschvink** (ELSI/Caltech), Are we really from Tharsis? An analysis of the electrochemical environment of early Martian high-altitude glaciers during late Noachian time (invited)
- 16:30 – 17:00 **Masahiro Yamamoto** (JAMSTEC), Electrochemical evolution of primordial metabolic core on deep-sea hydrothermal vent (invited)
- 17:00 – 17:30 **Yamei Li** (RIKEN), Geo-electrical current driven nitrate/nitrite re-

duction by Molybdenum-bearing minerals: implications for prebiotic geochemical evolution (invited)

17:30 – 18:00 **Akira Yamaguchi**, (RIKEN), Proton and temperature motive force for the electrochemical CO₂ fixation toward the origin of life in deep sea hydrothermal vent (invited)

18:15 - **Banquet**

Saturday, 28 November, 2015

09:00 - 09:25 **Taiki Suzuki** (The Graduate Univ. for Adv. Studies), Physical Properties of CH₂NH-rich sources

09:25 – 09:50 **Hiromu Nakagawa** (Tohoku Univ.), Precise detection of trace gases and isotopes on Mars by ground-based telescopes

09:50 – 10:15 **Tetsu Mieno** (Shizuoka Univ.), Production of Carbon Nano-Particles and Amino Acids by Impact Reactions in Nitrogen Gas by Means of Gas-Gun

10:15 – 10:40 **Hideo Hashizume** (NIMS), Reaction of adenine and ribose by repeated wetting and drying in the presence of montmorillonite

10:40 – 10:50 Shortbreak

10:50 – 11:30 **Masaharu Ishii** (Univ. Tokyo), rTCA cycle: how aerobic microbe utilizes the cycle?

11:30 – 12:00 **Akifumi Oda** (Kanazawa Univ.), Structural predictions of primitive proteins

12:00 – 12:25 **Satoshi Akanuma** (Waseda Univ.), Reverification of the thermophilicity of early life

12:25 – 12:50 **Shin-ichi Yokobori** (Tokyo Univ. Pharmacy Life Sci.), Current status on space exposure and capture experiments of microbes in TANPOPO mission at International Space Station

12:50 Closing remarks

Poster Presentations (All posters will be on display Friday to Saturday)

P-01 Sohsuke Ohno (Chitech)

A balloon experiment for stratospheric bioaerosol sampling

P-02 Jun Kimura (ELSI)

Toward characterization of extra-terrestrial deep water world and its habitability using computational approach and spacecraft exploration

P-03 Masashi Omiya (NAOJ)

Strategic survey for extrasolar Earth-like planets using the Subaru telescope with InfraRed Doppler

P-04 Norio Kitadai (ELSI)

Electrochemically-driven carbon fixation

P-05 Yuhito Shibaïke (Tokyo Tech)

Melting of the Hadean Continental Crust by Late Heavy Bombardment : Making a Birthplace of Life

P-06 Tomohiro Mochizuki (ELSI)

Genome of modern hyperthermophilic organism is not limited to double-stranded DNA -the first single-stranded DNA virus from 95 °C -

P-07 Daisuke Kiga (ELSI)

Construction of multiple amino acids excluded "simplified genetic code" by using multiple sets of tRNA variants