

令和 8 年度 北海道大学低温科学研究所 共同研究（研究集会 26S013）

極低温分子分光で解き明かす宇宙物質の化学

同時開催：The 10th Asia-Pacific Workshop on Molecular Spectroscopy (AWMS2026)

日時：2026 年 11 月 4 日－6 日

場所：低温科学研究所講堂

ホームページ：<https://awms-meeting.org/2026/index.html>

連絡先：広島大学 柘植雅士 mtsuge@hiroshima-u.ac.jp

プログラム

1st Day [2026/11/04]

9:25-09:30 Opening Remarks: Masashi Tsuge (Hiroshima University)

1st session

09:30-10:30 P01: **Naoki Watanabe** (Hokkaido University)
"Physicochemical Processes on Low-Temperature Ice Surfaces: A Key to Molecular Evolution in Space"

10:30-10:55 IT01: **Ni-En Sie** (Hokkaido University)
"Wavelength-Dependent Photodesorption of S atoms from Amorphous Silicate in the Visible Region"

10:55-11:15 Coffee Break

2nd session

11:15-11:35 CT01: **Atsuki Ishibashi** (Hokkaido University)
"Reaction-Induced Transient Diffusion of Radicals: A Driver of Chemical Complexity on Ice Surfaces at 10 K"

11:35-11:55 CT02: **Shuiming Hu** (University of Science and Technology of China)
"Precision Spectroscopy of Molecules: Scanning without a Map"

11:55-13:30 LUNCH

3rd session

13:30-13:55 IT02: **Cun-Feng Cheng** (University of Science and Technology of China)
"Precision Excitation and Measurement of Molecules with Cavity-Enhanced Technology"

13:55-14:20 IT03: **Yoonsoo Pang** (Gwangju Institute of Science and Technology)
"Intramolecular Charge Transfer in the Excited State"

14:20-14:40 CT04: **Tsuneo Hirano** (Ochanomizu University)
"Dynamic Molecular Properties. Part I. Vibrationally Averaged Structures of Linear Molecules"

14:40-15:00 Coffee Break

4th session

- 15:00-15:20 ST01: **Jun-Hao Yu** (Institute of Science Tokyo)
"Cold ion trap IR spectra of solvated H⁺ pyridine and H⁺ 1-methylpyrrolidine—
anharmonic vibrational analyses of NH stretching"
- 15:20-15:40 ST02: **Che-Wei Chang** (IAMS, Academia Sinica)
"Determination of Absolute OH ν_1 Line Strengths by Simultaneous
Measurements of OH and HO₂ in the HO₂ + NO Reaction"
- 15:40-16:00 ST03: **Momiji Karino** (Hiroshima University)
"Photodissociation Dynamics of *N,N*-Dimethylformamide: Application to
Generating Quasi-Bound Resonance States of HCO"
- 16:00-16:20 ST04: **Ryuto Kambara** (Hokkaido University)
"Floquet-AIMD Study of Molecular Dynamics in Intense Laser Field"
- 16:30-17:30 Poster Session

2nd Day [2026/11/05]

5th session

- 09:30-10:30 PL02: **Yuan-Pern Lee** (National Yang Ming Chiao Tung University)
"Unique Applications of *para*-Hydrogen Matrix-Isolation to Astrochemistry"
- 10:30-10:55 IT04: **Wei-Xing Li** (Fudan University)
"Quantum Tunneling in Molecular Clusters: Insights from Rotational
Spectroscopy"
- 10:55-11:15 Coffee Break

6th session

- 11:15-11:40 IT05: **Yoshiichi Suzuki** (Health Sciences University of Hokkaido)
"Advanced chiral photoelectron spectroscopy"
- 11:40-12:00 CT05: **Tsuneo Hirano** (Ochanomizu University)
"Dynamic Molecular Properties. Part II. *ab Initio* MD is really *ab initio*?
Confirmation by Wave Packet Dynamics"
- 12:00-13:30 Group Photo + LUNCH

7th session

- 13:30-13:55 IT06: **Henryk Witek** (National Yang Ming Chiao Tung University)
"Fine tuning of computational vibronic spectra"
- 13:55-14:20 IT07: **Fumie Sunahori** (Rose-Hulman Institute of Technology)
"Update on the High-Resolution LIF Analysis of B₃ and Detection of GaCH₃ and
InCH₃"
- 14:20-14:40 CT06: **Katsunari Enomoto** (University of Toyama)
"Deperturbation Analysis of $\Omega = 1$ States of PbO"

14:40-15:00	CT07: Ayaki Sunaga (Hokkaido University) "Theoretical Description of Torsion-vibration Coupling of Methanol Molecule"
15:00-15:30	Coffee Break
8th session	
15:30-15:50	ST05: Patrik Watkins (The University of Melbourne) "Spectroscopy of Hydrogenated Carbon Chain Anions"
15:50-16:10	ST06: Raiki Nishizawa (The University of Tokyo) "Direct Observation of OH Radical via Photocatalysis of Iron Mineral Surface"
16:10-16:30	ST07: Tamaki Endo (Hokkaido University) "Determination of Activation Energy for Thermal Diffusion of N Atoms on Amorphous Solid Water"
16:30-16:50	ST08: Kazuki Kataoka (Hiroshima University) "Theoretical analysis of the rotational constants of Cyano-PAHs detected in interstellar molecules"
17:00-18:00	Poster Session

3rd Day [2026/11/06]

9th session

09:30-09:55	IT08: Satoru Muramatsu (Hiroshima University) "Cryogenic Ion-Trap Spectroscopy of Three-Membered-Ring Carbocations: How is Aromaticity Reflected in Electronic Spectra?"
09:55-10:15	CT08: Kenee Kaiser Suyu Custodio (IAMS, Academia Sinica) "Conformational Landscapes of Alkali Metalated N-acetylhexosamines"
10:15-10:35	CT09: Dong Cao Hieu (IAMS, Academia Sinica) "Unraveling Ca–O Coordination in EPN–Ca–Carbohydrate Complexes through IR Spectroscopy and Deep-Learning-Accelerated Conformational Exploration"
10:35-11:00	IT09: Qian-Rui Huang (IAMS, Academia Sinica) "Anharmonic Vibrational Analysis of Water-Cyanide Isotopologues and Isotopomers"
11:00-11:20	Coffee Break

10th session

11:20-11:45	IT10: Yu-Jong Wu (National Synchrotron Radiation Research Center) " Energetic Processing of Solid Nitrogen "
11:45-12:05	CT10: Masashi Tsuge (Hiroshima University) "Direct Observation of Carbon Atoms on Solid CO and Formation of Carbon Chains under Interstellar Ice Conditions"

12:05-12:25	CT11: Masaaki Baba (Kobe University) "High-resolution Laser Spectroscopy and ab Initio Calculation of CN-PAHs — Approach to the Origin of Life in Outer Space"
12:25-12:40	Award Ceremony and Concluding Remarks
12:40-14:00	LUNCH
14:00-	Free Discussion & Lab Tour (Prof. Watanabe's laboratory)

Poster Presentations

Those with * are eligible for consideration for the Li-Hong Xu Award.

All poster presenters are expected to attend both poster sessions.

- P01 **Isabelle Weber** (National Yang Ming Chiao Tung University)
Vibronic Spectroscopy of Tetracene and Pentacene Isolated in Solid *para*-H₂
- *P02 **Nayuko Hishikawa** (Hokkaido University)
Temperature Dependence of Sulfur Atom Photodesorption from an Amorphous Forsterite Surface
- *P03 **Risa Amano** (Hokkaido University)
Ab Initio Real-Time Electron Dynamics Simulation of Multipolar High-Order Harmonic Generation and Elucidation of Selection Rules by Perturbation Theory
- *P04 **Susumu Hironaka** (Hokkaido University)
Tracking N₂ Diffusion on Amorphous Solid Water at Low Coverage
- P05 **Kohei Tada** (Fukuoka University)
High-Resolution Laser Spectroscopy of Nitrogen Dioxide around 615 and 790 nm
- *P06 **Akari Yasuda** (Hiroshima University)
Development of a Cryogenic Apparatus for Studying Photochemistry of Aromatic Molecules in Interstellar Ice Analogs
- P07 **Jun Miyazaki** (Tokyo Denki University)
TD-DFT Analysis of the Structures and UV–Vis Absorption Spectra of Butin and Butein
- *P08 **Haruto Ishii** (Toho University)
Millimeter-Wave Rotational Spectra of Hydantoins for Interstellar Detection
- *P09 **Kodai Fukasaka** (Hokkaido University)
Formation Pathways and Branching Ratios of CO, HCOOH, and CO₂ from H₂CO + OH Reactions on Amorphous Solid Water at 10 K
- *P10 **Kazuki Matsushita** (Toho University)
Rotational Spectral Analysis of Aminoacetonitrile
- *P11 **Hiroki Inoue**; co-presenter **Haruto Yokotake** (University of Toyama)
High-resolution Spectroscopy of $\Omega = 1$ Electronic States of Lead Monoxide (PbO)
- *P12 **Akihiro Murakami** (Toho University)
Line-Shape Analysis of CO₂-Broadened H₂O Rotational Transitions in the Submillimeter-Wave Region
- P13 **Arisa Iguchi** (The University of Electro-Communications)
Experimental Development for Highly Sensitive Spectroscopy of Interstellar H₃⁺
- P14 **Toru Sasaki** (Yokohama City University)
Nonadiabatic Variational Calculation of the H₃⁺ Molecular Ion Using the Gaussian Expansion Method
- *P15 **Yuxiao Xiao** (Hiroshima University)
Photoelectron Circular Dichroism in (R)-(+)-1-Phenylethanol
- P16 **Hiroshi Hidaka** (Hokkaido University)
Methanol formation by the association reaction between CH₃ and OH radicals via chemical transient diffusion on ASW at low temperatures