

The 4th Workshop of the Reaction Infography (R-ing) Unit

4-5, November, 2021 Virtual Symposium on ZOOM

The visualization of chemical reactions and functions is essential to understand functional materials. “Reaction Infography” is a term defined to visualize the key factors of chemical reactions and functions of materials and understand the black box of functionality. The R-ing Unit has been started since 2019 as the collaborative unit with the fields of visualization, informatics, and materials science to create a new master concept of material science based on Reaction Infography. In this workshop, we invite frontier researchers on visualization and material sciences and discuss the progress and development of reaction infography.

Program

Nov. 4 (Thu)

Session 1 (Chair: Mizuki Tada)

9:00-9:30 Opening Remarks: R-ing: Reaction Infography

Mizuki Tada
(Nagoya Univ.)

9:30-10:00 Metal-organic frameworks for catalysis and energy

Qiang Xu
(Southern Univ. of Science and
Technology (SUSTech))

10:00-10:30 Creation of Porous Magnet Realizing Concerted Responses between Gas Adsorption and Magnetic Phase Transition

Wataru Kosaka
(Tohoku Univ.)

【Intermission】

Session 2 (Chair: Hirotohi Sakamoto)

10:45-11:15 In situ TEM investigation of the catalytic sites at working conditions

Jun Huang
(Univ. Sydney)

11:15-11:35 In situ SHINERS for the investigation of hydrogenation reactions

Katinka Wondergem
(Nagoya Univ.)

11:35-12:05 Development of an efficient Ir complex as a molecular photocatalyst for photocatalytic CO₂ reduction

Jieun Jung
(Nagoya Univ.)

【Intermission】

Session 3 (Chair: Hirosuke Matsui)

13:15-13:45 Recent advances in synchrotron radiation X-ray tomography with high temporal resolution

Wataru Yashiro
(Tohoku Univ.)

13:45-14:15 Probing the novel spintronic phenomena by x-ray magnetic circular dichroism spectroscopy

Shinji Miwa
(Univ. Tokyo)

14:15-14:45 Transient reflection measurements for ultrafast carrier and phonon dynamics toward atto-second time region

Keiko Kato
(Nagoya Univ.)

【Intermission】

Session 4 (Chair: Zhongyue Zhang)

15:00-15:30 Resonant x-ray scattering study of topological magnetic textures

Yuichi Yamasaki
(NIMS)

15:30-15:50 Electron-ion coincidence laser tunneling electron imaging of O₂ with auxiliary dissociation laser pulses

Daimu Ikeya
(Nagoya Univ.)

15:50-16:20 Looking at sound, heat and magnetization in nanoscale thin films by ultrafast X-ray diffraction

Matias Bargheer
(Univ. Potsdam/
Helmholtz-Zentrum Berlin)

Nov. 5 (Fri)

Session 5 (Chair: Akiyoshi Hishikawa)

8:30-9:30 **[Plenary Lecture]**

New technologies for the generation and characterization of ultrashort mid-IR laser pulses

François Légaré
(INRS)

9:30-10:00 Investigating excited state molecular dynamics with soft X-ray free electron lasers

Ruaridh J.G. Forbes
(Stanford Univ.)

10:00-10:30 Attosecond electron beams: generation, detection and potential applications

Yuya Morimoto
(Friedrich-Alexander-Universität
Erlangen-Nürnberg / RIKEN)

[Intermission]

Session 6 (Chair: Yasuyuki Yamada)

10:45-11:15 Polymer adsorption and separation in metal–organic frameworks
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in metal–organic frameworks

Nobuhiko Hosono
(Univ. Tokyo)

11:15-11:45 NMR nano-crystallography with microED

Yusuke Nishiyama
(JEOL RESONANCE-RIKEN)

11:45-12:05 Controlled reduction & growth of gold nanoclusters within the nanospace of a metal-organic
framework

Susan Sen
(Nagoya Univ.)

[Intermission]

Session 7 (Chair: Ryotaro Matsuda)

13:15-13:45 New materials for efficient photon upconversion at low excitation intensity

Nobuhiro Yanai
(Kyushu Univ.)

- 13:45-14:15 Supramolecular approach towards potent molecule-based methane oxidation catalyst
Yasuyuki Yamada
(Nagoya Univ.)
- 14:15-14:35 3D visualization of a molecular adsorption process in a single MOF crystal
Hirotohi Sakamoto
(Nagoya Univ.)
- 14:35-15:05 Porous coordination polymers: from design to gas separation functions
Jingui Duan
(Nanjing Tech Univ.)
- 15:05-15:15 Concluding Remarks
Ryotaro Matsuda
(Nagoya Univ.)