



Dr. Hirosuke Matsui

Lecturer

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Dr. Hirosuke Matsui is a lecturer in Department of Chemistry at Nagoya University, where his group researches the synthesis and operando characterization of functional solid materials for catalysts and fuel cells. Currently, his work focuses on the development of X-ray spectroimaging technique combining synchrotron X-ray imaging with X-ray absorption fine structure spectroscopy. After completing his Ph.D. on Science at Nara Institute of Science and Technology in 2014, he worked with Prof. Dr. Mizuki Tada, followed by a postdoctoral fellowship in 2014 at Nagoya University. He joined Department of Chemistry in 2015 and is a recipient of an encouraging prize from the Japanese Society for Synchrotron Radiation Research.

Will lecture on:

Operando X-ray spectroimaging of functional solid materials

X-ray absorption fine structure (XAFS) is one of the most powerful methods to reveal the local coordination structures of any materials without crystalline structures. Conventional XAFS measurement is performed by using mm-sized X-rays as a probe and averaged structural information in the beam spot can be obtained. Recently, the development of X-ray imaging is cutting-edge and enables the spectroimaging combining hard X-ray imaging and XAFS spectroscopy, and 2D/3D XAFS imaging has been reported. We developed the novel computed tomography XAFS, called CT-XAFS, and applied to the operando measurements of functional materials at work.

In this talk, I will introduce our recent results of the operando spectroimaging of functional materials such as catalysts, polymer electrolyte fuel cells, gas adsorbates, and adhesion properties of rubber-metal interfaces. Also, I will introduce our latest collaboration work with informatics, utilizing the huge data sets of 3D spectroimaging data.

Thursday, March 9th, 2023, 10:00am (Israel Time)

Grand Technion Energy Program

Technion, Haifa, Israel

Zoom: <https://us02web.zoom.us/j/4964370298?pwd=TWpFeFg4TVVRcGJtRENHaCt3N3Q5QT09>