

# Realization of common platform technology, facilities, and equipment that creates innovative knowledge and products

## High-throughput and high-precision electron 3D crystallography

**Project Leader :** Koji Yonekura  
Group director, RIKEN SPring-8 Center /  
Professor, IMRAM, Tohoku University

**R&D Team :** JEOL Ltd.



### Summary :

Electron 3D crystallography (also known as 3D ED and microED) can reveal the atomic structure from undersized crystals of various samples, which hardly grow to a suitable size even for a high-intensity X-ray beam. To accelerate its application and achieve high-quality structure analyses, our development will focus on two main subjects. (I) Thorough analysis of sample crystals through high-throughput data collection and processing, which will allow us to evaluate detailed properties of samples. (II) High-precision structure analysis to reveal hydrogen-bond networks and charge distribution.

In addition to these new technologies, we will incorporate hardware and software upgrades into a next generation cryo-EM to achieve our aims. We will also contribute to enhancement of R&D through our platform for structure studies over a wide range of scientific fields.

