



08<sup>th</sup> September 2017 - 14:00 h

CFEL – building 99, seminar rooms I - III (ground floor)

## Tsumoru Shintake

Okinawa Institute of Science and Technology Graduate University

# In-line Holography Electron-Microscope for Single Biomolecule Imaging

Tsumoru Shintake, Masao Yamashita, Martine Phillip Cheung,  
Katsutoshi Shirasawa, Hideki Takebe, Cathal Cassidy,  
Ryusuke Kuwahara, Jun Fujita, Junichiro Minami and Hidehito Adaniya

OIST: Okinawa Institute of Science and Technology Graduate University  
1919-1, Tancha, Onna-son, Okinawa 904-0495 Japan

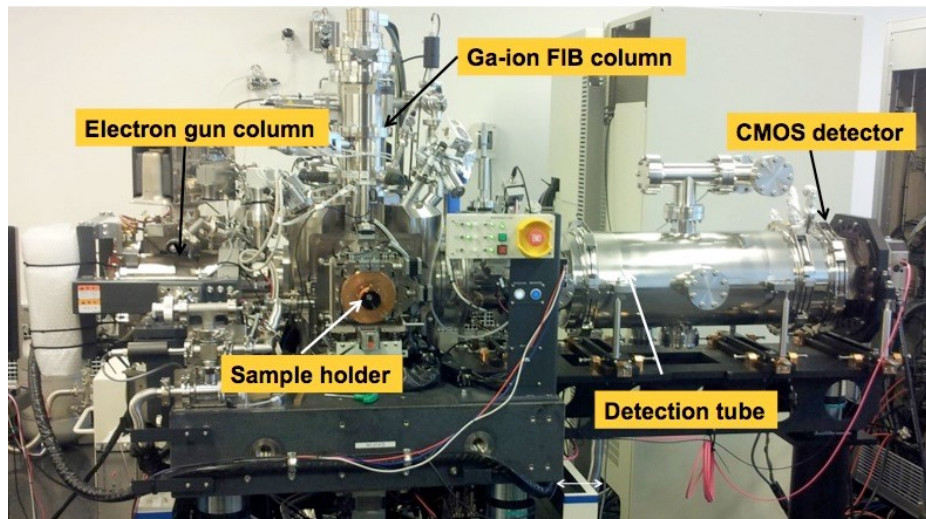


Fig. 1. OIST In-line Holography Microscope.

We have developed the low energy electron diffraction microscope at OIST for structural analysis on biomolecules (virus, flagella, secretion system and ultimately membrane proteins).

- (1) To obtain high contrast image, we use low energy electron beam: typically 20~30 keV.
- (2) To observe samples in native state, we apply ice embedding.
- (3) Gabor's in-line holography provides high contrast image with ~100 um offset focus.
- (4) Real image is directly given by FFT without iterations. The digital image filtering eliminates ghost image.

Recent results will be reported.

**Host: Henry Chapman / Coherent Imaging - CFEL-I**