

## FY2021 Nanotech Career-up Alliance

### Introduction to Electron Beam Lithography / Kyoto University

In the most-advanced semiconductor devices and MEMS, the requirement for nanoscale patterns have become important. The key technology to meet the requirement is the electron-beam lithography which can draw the fine patterns in the nanometer order.

This course is intended for the beginners of Electron-beam Lithography. The participants will learn the basic knowledge about the nanoscale patterning through the designing a nanoscale pattern by CAD, exposing the pattern on silicon wafers with oxide film by the most-advanced electron-beam lithography equipment, dry etching the pattern, and the observing the fabricated pattern with SEM.

#### ■ Number of Participants:

3 persons (Max.)

#### ■ Time and Period:

From July 26 (Mon.) to July 28 (Wed.), 2021

(Total 2.5 days: Lecture: 0.5 days, Practice: 2 days)

#### ■ Venue:

Nanotechnology Hub, Kyoto University  
#327 Faculty of Engineering Engineering Science Depts Bldg.  
Yoshida Honmachi, Sakyo-ku, Kyoto  
URL: <http://www.nanoplat.cpier.kyoto-u.ac.jp/access/>

#### ■ Contents:

##### Day 1 – July 26 (Mon.), Afternoon

- (1) Fundamentals of electron-beam lithography (lecture)  
(Introduction, Equipment, Drawing methods, Process, and Alignment of electron-beam lithography)

##### Day 2 – July 27 (Tue.)

- (2) Pattern design by CAD (practice)
- (3) Drawing patterns by an electron-beam lithography equipment (practice)
- (4) Development of drawing pattern (practice)

##### Day 3 – July 28 (Wed.)

- (5) Dry etching of oxide film (practice)
- (6) Observation of fabricated structures by SEM (practice)

#### ■ Tuition:

14,000 JPY

#### ■ Contact:

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