**PHYS-E0526 - Microscopy of Nanomaterials**

**TEM Independent Laboratory Exercise**

**Training**

**The main objectives of the training are:**

1. **Basic knowledge of using TEM (start up of the instrument, insertion, and removal of the specimen, shutting down of the system etc.)**
2. **How to perform necessary microscope alignments**
3. **What affects the acquired image and how to acquire it**

**Independent exercise**

First, you will be asked to perform all the microscope alignments presented previously during training.

You will receive TEM sample containing unknown specimen.

1. Perform imagining of the sample in Bright Field mode; spot size:3, objective aperture 3. What can you observe? Try different magnifications. Acquire images and save them.

**Report**

Please write ca. 1-2 pages describing what you did during the tutorial, and what was discussed during training. Include acquired pictures. Try to answer following questions:

- What do we try to achieve by performing the alignments? What alignments did you perform?

- Which type of grid was used and why do you think so?

- What is the function of apertures?

- What information could you find out about sample? What couldn’t you conclude?

Please include group members group and shortly describe contribution of each group member, both during practical and report writing as well.

**Kindly send report to** [**monika.krol@aalto.fi**](mailto:monika.krol@aalto.fi) **until 12th of May.**