Department of Physics
Faculty of Mathematics and Natural Sciences
Universitas Indonesia

WEEKLY SEMINAR

TRANSMISSION ELECTRON MICROSCOPE (TEM) AND ITS APPLICATIONS ON MATERIALS SCIENCE

Abstract

Transmission electron microscope (TEM) is a perfect instrument for structural and chemical characterization at the nanoscale. Imaging, diffraction and microanalytical information are easily produced and then combined to give detailed insights into the properties and behavior of nanostructured materials. There are three main kinds of TEM techniques such as imaging techniques: including high resolution TEM, scanning transmission electron microscopy (STEM) imaging, and 3D electron tomography technique; spectroscopy techniques: including X-ray energy dispersive spectroscopy (EDS); diffraction techniques: including selected area electron diffraction (SAED), nano-beam electron diffraction (NBED), and convergent beam electron diffraction (CBED) as well as their combinations. Sample preparation prior to analysis is critical and directly impacts the quality of the characterization. From the nature of the technique, specimens have to be clean and dry prior to analysis, to ensure proper imaging and reliable analysis. Sample preparation is minimal for powders/particles but extensive for bulk specimens. Specific equipment for TEM sample preparation are ultrasonic disc cutter, dimpler, ion polishing). In addition, TEM specimens from specific locations on samples can be prepared in-situ using the focused ion beam.

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Product Support for Electron Microscope
FEI / Thermo Fisher Scientific
PT Multi Teknindo Infotronika
Senayan, Jakarta 12210, Indonesia

13.00 – 14.30 WIB

Main Seminar Room
Dept. of Physics, FMIPA UI
Depok

25
Wednesday

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This seminar is open to the public (students, lecturers, researchers, etc.) and free of charge