Microstructural analysis by Transmission Electron Microscopy

High-resolution Transmission Electron Microscopy (HR-STEM) JEOL JEM-2200FS is dedicated predominantely for the characterization of neutron-irradiated structural materials. TEM enables to study the microstructure, chemical composition and crystallography at the subnanometric level. FEG electron source enables the resolution higher than 0.2 nm, the maximum accelerating voltage is 200 kV. Detectors for STEM are HAADF, ADF and BF. There is a possibility to use the CBED, NBED, SAED. Chemical composition of the materials is analysed by EDS, EELS and EFTEM modes. TEM system also includes the holder for in-situ testing at thermal load of specimens till 1000°C or tensile testing of specimens. Complementary methods often used to complete the TEM results are SEM analyses of the microstructure on the larger place of interest performed on prepared TEM foils as well as nanoindentation experiments including the in-situ experiments till the temperature up to 800°C.

TEM-1 High-resolution Transmission Electron Microscopy (HR-STEM) JEOL JEM-2200FS in CVŘ laboratory focused on the neutron-irradiated material studies.