**High resolution transmission electron microscope**

**Equipment:** High resolution transmission electron microscope JEM-3010 (JEOL)

**No. of Equipment:** UACH10

**Responsible coordinator:** Dr. Petra Ecorchard

**Name of Institution:**  Institute of Inorganic Chemistry of the AS CR, v.v.i.

**Address of Institution:** Husinec-Řež 1001, 250 68 Řež near Prague, Czech Republic

**E-mail:** [ecorchard@iic.cas.cz](mailto:ecorchard@iic.cas.cz)

**Telephone:** 311236922

**Homepage:** http://cit.iic.cas.cz/

**Contact person:** Dr. Natálija Murafa

**E-mail:** [murafa@iic.cas.cz](mailto:murafa@iic.cas.cz)

**Telephone:** 311236909

**Equipment Description**

**Description of equipment:**

High resolution transmission electron microscope JEM-3010 (JEOL) equipped with EDX detector (Oxford Instruments) and precession diffraction DigiStar (NanoMegas).

Specifications:

Accelerating voltage **300 kV**

Electron source (cathode) **LaB6**

Point resolution **1.7 Å**

Objective lens, Cs **0.6 mm**

**CTEM** Conventional TEM

**HRTEM** High Resolution TEM

**SAED** Selected Area Electron Diffraction

**CBED** Convergent Beam Electron Diffraction

**NBD** Nano Beam Diffraction

**EDS** Energy Dispersive Spectrometry

**PED** Precession Electron Diffraction

**DigiSTAR** phase/orientation mapping

**Specification of expertise relevant to NanoEnviCz workpackages:**

**WP3**a,c-h, **WP4**a,b, **WP5**c, **WP6**a,c-f, **WP7**a-e,g-i, **WP8**a,c-f

**Detailed description of expertise**

**Please, specify the main research topics connected with equipment**:

All the fields in which the characterization of the prepared materials is needed (morphology, phase analysis on nanometer scale, maps of various crystallographic phases and the crystal orientation).

**Please, specify the secondary research topics connected with equipment**:

**Keywords describing research area:**

Conventional TEM, High Resolution TEM, Selected Area Electron Diffraction, Convergent Beam Electron Diffraction, Nano Beam Diffraction, Energy Dispersive Spectrometry, Precession Electron Diffraction, Phase/orientation mapping

**Competence**

**Relevance for applied and industrial research:**

High-quality materials characterization to support preparation of perspective novel materials in large scale production (applied and industrial research).

**Relevance for fundamental studies:**

Detailed analysis of prepared materials connection between morphology and properties in nanoscale range.