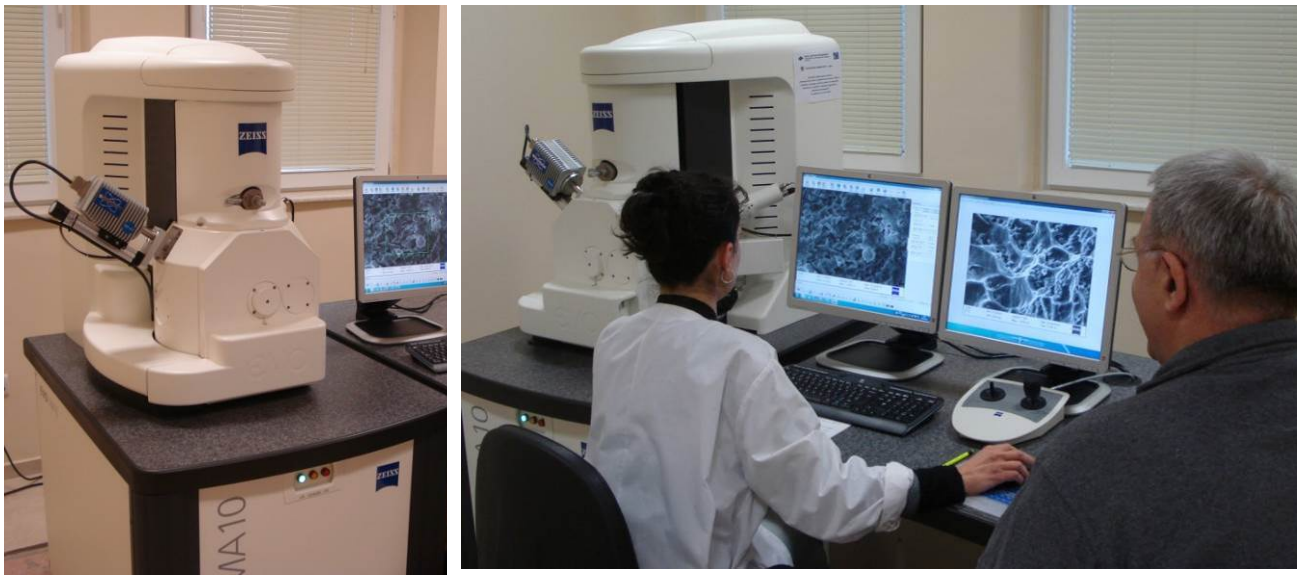
SCANNING ELECTRON MICROSCOPE EVO MA 10 WITH EDX SYSTEM - CARL ZEISS

Field emission scanning electron microscope SEM (EVO MA 10 „Carl Zeiss“) is used for studies of structure and composition of micro/nano structured materials from carbon to uranium in the periodic system. EDX (Energy Dispersive X-ray detector system „Bruker“) is added to this main configuration. It is possible to understand the fundamental properties and composition (spectrum) of crystalline materials within area (mapping) and a single point using structural analysis, based on scanning electron scanning and energy dispersive X-ray analysis. The maximum resolution of the SEM/EDX is from 5 nm to 20 nm by accelerating voltage 0.2 – 30 kV and magnitude of 7x до 1 000 000x.



Scanning electron microscope SEM (EVO MA 10 „Carl Zeiss“), with EDX (Energy Dispersive X-ray detector system „Bruker“)

Main technical characteristics

Scanning electron microscope

- maximum resolution – from 3 (2) nm up to 20 nm by acceleration voltage 0.2 – 30 kV;
- magnification 7x до 1 000 000x;
- 1 – 30 kV acceleration voltage (variable);
- secondary and backscattering electrons;
- easy to use – auto brightness, contrast and focus;
- adjustable acceleration voltage 1 ~30 kV;
- scanning within micro/nano spots;
- variable scanning spot size;
- high vacuum (rotary and turbo pump);
- basic image software – acquire, save, print, basic measurement;

Nano Analysis (Platinum) detection from Carbon to Uranium - – EDX system „Bruker“

Over this configuration of the microscope additional systems and equipment for quantitative nano analysis (Platinum) Energy Dispersive X-ray detector:

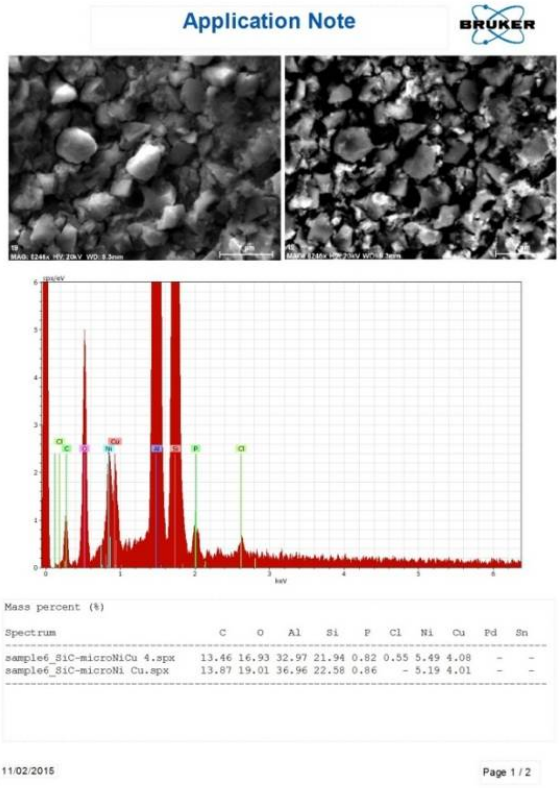
- high speed liquid nitrogen free X-ray detector;
- identification and concentration determination;
- simulation – Monte Carlo and detector geometry;
- qualitative and quantitative analysis;
- elemental mapping (distribution and material concentration);
- easy report writing auto save;
- chemical typing – particle counting and analysis;

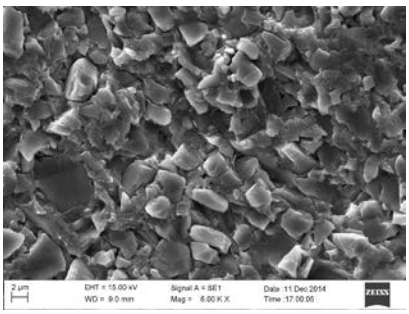
- trace sensitive analysis (hyper spectral analysis);
- critical measurement – wafer – line measurement;
- 3D mapping, 3D measurement, Z-high;
- remote conferencing;
- stereo imaging;
- video system, synchro analysis, auto analysis (spectra ay every point);

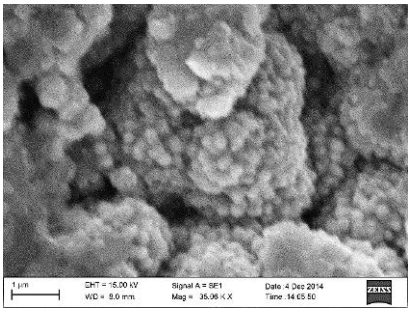
Fields of application

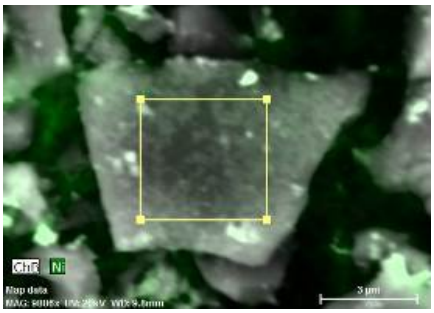
This scanning electron microscope can perform complete and accurate micro/nano structural analysis and a detailed X-ray diffraction analysis of elements from carbon to uranium in the periodic system. The microscope is capable to complete scanning of macro/micro fractures and also non-polish surfaces without additional sample preparation. It can create and use of 3D images and 3D measurements of micro/nano structural elements, determining grain size, distances between different phases, adjacent layers of nanocomposite materials and coatings.

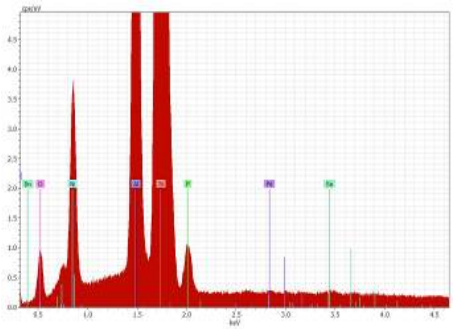
- **SEM/EDX of micro/nano particles and carbon fibers**

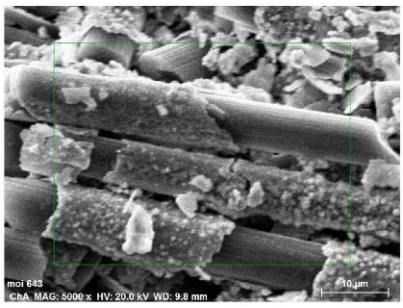


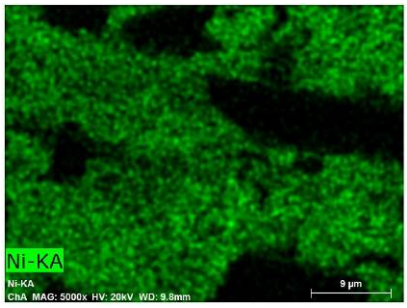


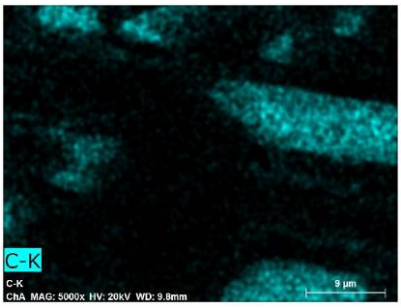




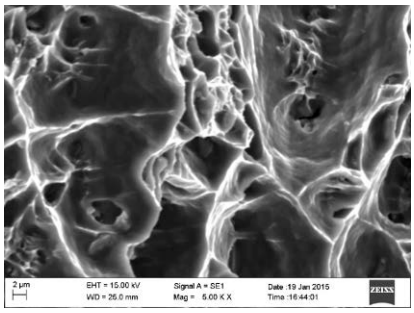


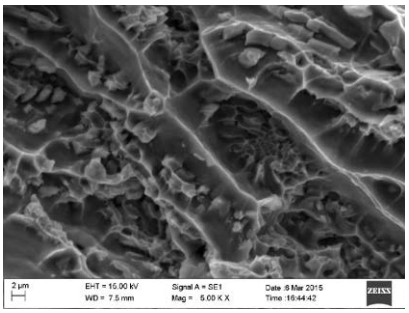


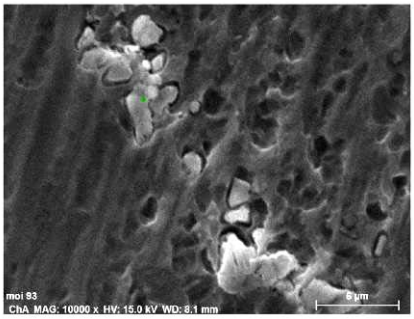


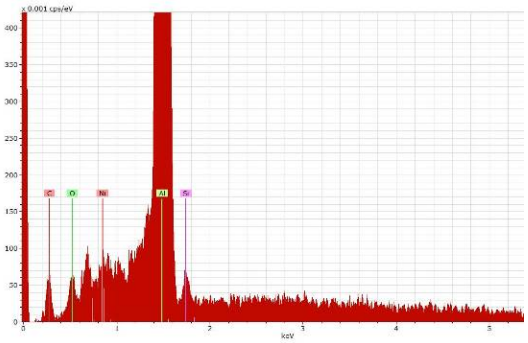


- **SEM/EDX of macro/micro fractures and non-polish surfaces**









- **SEM/EDX of metal matrix composite polish sample**