**XPS/ESCA and Auger electron spectroscopy**

**Equipment:** XPS/ESCA and Auger electron spectroscopy

**No. of Equipment: UJEP3 (modernization Pro-NanoEnviCz II)**

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**Equipment Description**

**Description of equipment:**

The instrument is an electron spectrometer SPECS with X-Ray source of achromatic (Al/Mg) and monochromatized (Al/Ag) photons for electron spectroscopy (XPS/ESCA) analyses with electron source-based charge compensation. The system also is equipped with an electron source (50 eV – 3000 eV) for Auger electron spectroscopy (AES) with scanning options and SE detector (SEM/SAM). The detection unit is 5 channel channeltron. The base pressure is about 4x10-9 mbar.

The solid samples and powder samples can by analyzed. The limitation is mainly in the sample stability under the measurement conditions. Heavily outgassing samples are not suitable. It is possible to detect presence of a surface contaminations or residua. The sample size is limited to diameter of 20 mm and height of 10 mm.

A depth profiling of elemental composition is possible by Argon ions sputtering from external ion source.

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

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

**Detailed description of expertise**

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

Qualitative and quantitative composition analyses with an identification of chemical bonding; depth profiling of the elements in samples

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

Understand to surface contaminations and residua.

**Keywords describing research area:**

Elemental compositions, bonding of elements,

**Competence**

**Relevance for applied and industrial research:**

The surface elemental and chemical composition of various surfaces can be investigated. It can be used to detect failure reasons, prove quality of materials, and etc.

**Relevance for fundamental studies:**

The elemental and chemical analyses of surface are the key to understanding to any surface related processes.