**UV/Vis spectrophotometer CINTRA with an integrating sphere**

**Equipment: UV/Vis spectrophotometer CINTRA with an integrating sphere** **(included in the Laboratory of Photochemistry)**

**No. of Equipment: UJEP10**

**Responsible coordinator:** Prof. Ing. Pavel Janoš, CSc.

**Name of Institution**: J. E. Purkyně University in Ústí nad Labem, Faculty of Environment

**Address of Institution:** Králova Výšina 3132/7, 400 96 Ústí nad Labem, Czech Republic

**E-mail:** pavel.janos@ujep.cz

**Telephone:** +420 475 284 148

**Homepage:** http://fzp.ujep.cz

**Contact person:** prof. Pavel Janoš

**E-mail:** pavel.janos@ujep.cz

**Telephone:** +420 475 284 148

**Equipment Description**

**Description of equipment:**

**UV/Vis spectrophotometer CINTRA with an integrating sphere**

* Photometric system: double beam, direct ratio recording system
* Wavelength range: 190 – 1200 nm
* Wavelength accuracy: ± 0,01 nm
* Measuring modes: wavelength scan, Time scan, Fixed wavelength reading
* Photometric linearity: <0.6%@3Abs
* Photometric accuracy: (NIST 930D standard filter, 0 to 0,5 A): ± 0,0004 A
* Photometric noise (500 nm, 2 nm SBW, 1 sec smoothing): < 0.00002A@0A; < 0.00004A@1A; < 0.00029A@2A

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

**WP4**a,b,c **WP6**a,b,e, **WP7**a

**Detailed description of expertise**

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

**Testing of the photo-degradation efficiency of nanocrystalline metal oxides and other (nano)materials**

Photo-catalytic activity of nanomaterials towards selected model compounds (dyes, pesticides, chlorophenols, …) or other contaminants

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

**Homogeneous photo-catalytic processes**

Mechanisms and kinetics of the photo-catalytic reactions, identification of reaction products and reaction pathways

**Keywords describing research area:**

Photocatalytic activity, Heterogeneous photocatalysis, Homogeneous photocatalysis

**Competence**

**Relevance for applied and industrial research:**

Modular testing equipment that allows to measure a photocatalytic activity of various nano(materials) under highly reproducible conditions with pre-determined model contaminants (dyes, pesticides, chlorophenols, …) or customer-specified target compounds.

Kinetic measurements under strictly specified conditions, optimization of the photo-catalytic process, estimation of degradation efficiency and other performance characteristics.

Exploitation of f**undamental understanding** of materials structure/activity for new kinds of photo-catalysts.

**Relevance for fundamental studies:**

Studying the mechanisms and kinetics of heterogeneous photo-catalytic reactions