

















Report from abroad travel

1. **Full Names:** Klaudia Wojtaszek
2. **Organizational Unit:** Jan Kochanowski University in Kielce
3. **Travel purpose:** Scientific Experiment
4. **Country and area target:** Paul Scherrer Institut, Villigen Switzerland
5. **Duration of travel:** 11-15.11.2016r.
6. **The task / achievement:**

The purpose of this travel was to conduct a scientific experiment at SuperXAS beamline of Swiss Light Source, Switzerland. The experiment was conducted as part of Task 2 and Task 3 of the SonataBis project: “Investigation on surface and bulk TiO₂ electronic structure based on experimental results and theoretical evaluations” and “Investigation of surface/bulk electronic structure in TiO₂-doped with N, C and S at material’s working conditions.”. During the above-mentioned experiment were measured samples of titanium dioxide (pure and nitrogen doped).

The X-ray at beamline are collimated by Si-mirror that provides high energy cut-off at 10 keV. The monochromatization is performed with double crystal Si(111) monochromator providing relative energy resolution $\Delta E/E$ of 2×10^4 that at Ti K-edge gives 1 eV bandwidth. X-ray beam is focused down to $100 \times 100 \mu\text{m}^2$ spot with Pt-toroidal mirror placed downstream of monochromator. The experiment was conducted around the K- absorption edge. The K β X-ray emission from the sample was measured by means of von Hamos-type X-ray spectrometer equipped with Ge(400) crystal for X-ray dispersion at central Bragg angle of 61. Presented experimental arrangement allowed for determination of resonant X-ray emission and X-ray absorption spectra.

7. Short summary and list of measured data:

Nazwa	Nazwa	Nazwa
 TiO2 sample 1	 20161113182057_XES_TiO2sample1	 20161113192250_XES_TiO2sample2
 TiO2 sample 2	 20161114003048_XES_TiO2sample1	 20161114013204_XES_TiO2sample2
 TiO2 sample 3	 20161114064000_XES_TiO2sample1	 20161114084607_Elastic_TiO2sample2
 TiO2 sample 4	 20161114083549_Elastic_TiO2sample1	 20161114100701_XAS_TiO2_sample2
 TiO2 sample 5	 20161114083915_Elastic_TiO2sample1	
 TiO2 sample 10	 20161114095712_XAS_TiO2_sample1	

Nazwa	Nazwa
20161113202407_XES_TiO2sample3	20161113212609_XES_TiO2sample4
20161114023320_XES_TiO2sample3	20161114033525_XES_TiO2sample4
20161114085406_Elastic_TiO2sample3	20161114090050_Elastic_TiO2sample4
20161114101731_XAS_TiO2_sample3	20161114102518_XAS_TiO2_sample4
Nazwa	Nazwa
20161113222728_XES_TiO2sample5	20161113232845_XES_TiO2sample10
20161114043643_XES_TiO2sample5	20161114053758_XES_TiO2sample10
20161114090906_Elastic_TiO2sample5	20161114091841_Elastic_TiO2sample10
20161114103314_XAS_TiO2_sample5	20161114104216_XAS_TiO2_sample10

8. Supervisor signature:



Figure 1: Photograph of the samples as installed at SuperXAS beamline of SLS.