

Report from abroad travel

1. **Full Names:** Krzysztof Tyrała
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 1 of the Opus project: "Investigation of one-photon absorption (OPA) of x-rays using synchrotron radiation (experiments at Swiss Light Source)". During the above-mentioned experiment were measured metallic foil samples of 3d and 5d elements in order to determination of OPA cross-sections at off-resonant excitations.

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 Kb 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, X-ray absorption and high energy resolution off-resonant spectrum.

7. Short summary and list of measured data:

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| 20161112124714_Zn_25um-foil_elastic | 20161112180058_Ir_25um-foil_RIXS |
| 20161112124909_Zn_25um-foil_RIXS | 20161112180838_Ir_25um-foil_off-resonant |
| 20161112125130_Zn_25um-foil_RIXS | 20161112201438_Pt-25um_foil_elastic |
| 20161112130035_Zn_25um-foil_off-resonant | 20161112201816_Pt-25um_foil_RIXS |
| 20161112130052_Zn_25um-foil_off-resonant | 20161112204512_Pt-25um_foil_off-resonant |
| 20161112130133_Zn_25um-foil_off-resonant | 20161112221656_Pt-25um_foil_elastic |
| 20161112134413_Zn_25um-foil_RIXS | 20161112221953_Pt-25um_foil_RIXS |
| 20161112140303_Zn_25um-foil_elastic | 20161112224648_Pt-25um_foil_off-resonant |
| 20161112140443_Zn_25um-foil_elastic | 20161113001831_Pt-5um_foil_elastic |
| 20161112140619_Zn_5um-foil_RIXS | 20161113002206_Pt-5um_foil_RIXS |
| 20161112140928_Zn_5um-foil_RIXS | 20161113004900_Pt-5um_foil_off-resonant |
| 20161112141652_Zn_5um-foil_off-resonant | 20161113022045_Pt-5um_foil_elastic |
| 20161112145032_Zr_offres | 20161113022344_Pt-5um_foil_RIXS |
| 20161112145108_Zr_offres | 20161113025046_Pt-5um_foil_off-resonant |
| 20161112145232_Zr_offres_5min | 20161113124712_Re_175um_foil_Elastic |
| 20161112150521_Zr-foil_off-resonant | 20161113124827_Re_175um_foil_RIXS |
| 20161112150559_Zr-foil_off-resonant | 20161113124844_Re_175um_foil_Elastic |
| 20161112154602_Cu_25um-foil_elastic | 20161113124956_Re_175um_foil_RIXS |
| 20161112154752_Cu_25um-foil_RIXS | 20161113125737_Re_175um_foil_off-resonant |
| 20161113151449_Co_6um_foil_RIXS | 20161114164041-Ta-25um_foil_elastic |
| 20161113152224_Co_6um_foil_off-resonant | 20161114164230-Ta_25um-foil_RIXS |
| 20161113154540_Co_25um_foil_Elastic | 20161114165008-Ta-25um_foil_off-resonant |
| 20161113154725_Co_25um_foil_RIXS | 20161114165706-Ta-25um_foil_off-resonant |
| 20161113155459_Co_25um_foil_off-resonant | 20161114171738-Ta-5um_foil_elastic |
| 20161113161740_Fe_25um_foil_Elastic | 20161114171928-Ta_5um-foil_RIXS |
| 20161113161935_Fe_25um_foil_RIXS | 20161114172709-Ta-5um_foil_off-resonant |
| 20161113162713_Fe_25um_foil_off-resonant | |
| 20161114131837_V-25um_foil_elastic | |
| 20161114132458_V-foil_25um_RIXS | |
| 20161114133256_V-25um_foil_off-resonant | |
| 20161114135849_V-6um_foil_elastic | |
| 20161114140528_V-foil_6um_RIXS | |
| 20161114141326_V-6um_foil_off-resonant | |
| 20161114144610_Cr-25um_foil_elastic | |
| 20161114145228_Cr_25um-foil_RIXS | |
| 20161114150022_Cr-25um_foil_off-resonant | |
| 20161114150928_Cr-6um_foil_elastic | |
| 20161114151559_Cr_6um-foil_RIXS | |

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Signature

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Supervisor signature

