

## **"X-ray Spectroscopy with Sub-micron Spatial Resolution for Earth and Planetary Materials**

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Beamline 5-ID, the sub-micron resolution X-ray spectroscopy (SRX) beamline has been designed, installed and commissioned as an X-ray fluorescence analytical probe dedicated to spectroscopy experiments with sub- $\mu\text{m}$  and sub-100nm spatial resolution. The scientific emphasis of this beamline is the study of complex systems with chemical heterogeneity at sub-micrometer and sub-100nm length scales. The energy range from 4 keV to 25 keV allows for X-ray fluorescence and absorption spectroscopy experiments starting at the K-absorption edge of titanium, extending through the K-edge of rhodium. Ultimately combined with the use of new energy dispersive detectors like the MAIA, SRX will open new possibilities for spectroscopic analysis of major and trace elements in earth and planetary materials, X-ray fluorescence imaging of their distribution both in 2D and 3D, concurrent  $\mu$ -diffraction measurements, and coherent diffraction imaging experiments. A detailed description of the status of the SRX beamline will be provided here. Already now, beamtime requests exceed fourfold the time.