

P64 X-ray absorption spectroscopy beamline for photon-hungry experiments

Vadim Murzin⁽¹⁾, Wolfgang Caliebe⁽¹⁾, Aleksandr Kalinko⁽²⁾, Benjamin Bornmann⁽³⁾,
Marcel Görlitz⁽¹⁾, Maria Naumova⁽¹⁾

⁽¹⁾ DESY, Hamburg, Germany

⁽²⁾ University of Paderborn, Germany

⁽³⁾ University of Wuppertal, Germany

vadim.murzin@desy.de

The P64 X-ray absorption spectroscopy beamline (PETRA III, DESY, Hamburg) has started to operate in a user mode since May 2017 and shows a continuous progress. The beamline is dedicated to X-Ray Absorption Spectroscopy (XAS) experiments which require high flux like EXAFS of highly diluted systems (ppm range), quick EXAFS (QEXAFS) measurements on a timescale of 10ms – 10s with a special monochromator and ion chambers, and experiments with energy resolution of less than 0.5 eV by means of a von Hamos spectrometer (Fig. 1).

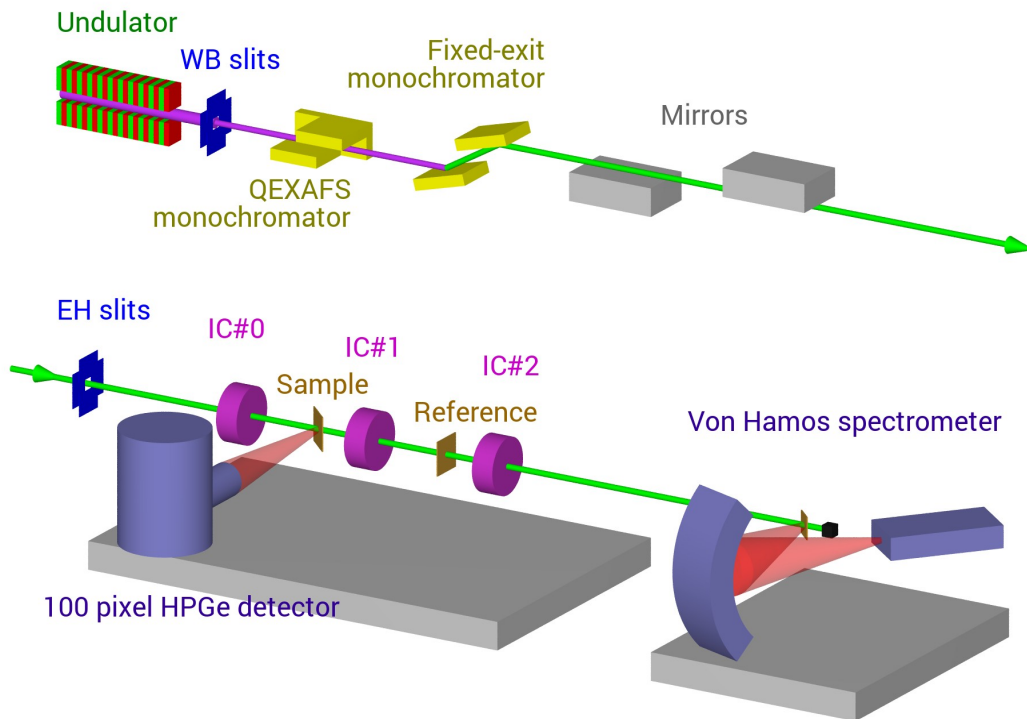


Fig. 1. Layout of the P64 beamline. Top: the undulator source and optics, bottom: experimental configuration.

Different sample environments are available at the beamline: a closed cycle He cryocooler (Janis) for low temperatures down to 4K, a liquid jet setup, a heating and freezing stage (Linkam), sample stages for translation and rotation and a gas/exhaust/cooling water system for catalytic experiments. User-provided sample environments can also be installed.

We will briefly describe the beamline and its components, discuss various scanning techniques, and present a few results of different users' experiments.