

## **Hard x-ray spectromicroscopy using photoelectron emission microscope**

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We have demonstrated an x-ray spectromicroscopy using photoelectron emission microscopy (PEEM) with hard x-rays. The advantages of the use of hard x-rays as an excitation source are the large probing depth, clear chemical contrast, and XAFS capability. The hard x-ray spectromicroscopy measurements were performed at the circularly polarized hard x-ray undulator beamline BL39XU of the SPring-8.

The spatial resolution of the hard x-ray PEEM is estimated to be 40 nm. The magnetic image of ultra high-density recording media CoCrPt are obtained at the Pt L-edge utilizing x-ray magnetic circular dichroism. The written magnetic patterns are clearly observed with a 130 nm spatial resolution.

We have also achieved a visualization of the buried interface of Au nanostructures buried by a 200 nm Co capping layer. The buried nanostructures are clearly imaged. The chemical mapping and nano-XAFS of iron meteorite are also shown. Nano-XAFS from a sub-micron area is obtained.