

Laboratory-based photoemission spectro-microscopy at 71.7 eV for studies of complex materials

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This poster is about the combination of a state-of-the-art PEEM with an intense yet compact gas-discharge light source to exploit the full strength of the state-of-the-art photoemission microscope. We selected 71.7 eV (17.28 nm) photon energy from the oxygen spectrum (O^{5+} spectral line) for photoelectron imaging in the direct- and k-space to map the band structure of an Au (111) single crystal surface using the NanoESCA. To study the surface oxidation on islands of the phase-change material $Ge_xSb_yTe_z$ grown in hexagonal crystal structure, we performed highly surface-sensitive spectro-microscopy with a laboratory-based light source previously only feasible at synchrotron beamlines and compare our results to ordinary XPS measurements with 1.486 keV photon energy.