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Development of a Microfocus Beamline for Angle-Resolved Photoelectron Spectroscopy T. MILLER, Univ. of Illinois at Urbana-Champaign, M. BISSEN, Univ. of Wisconsin Synchrotron Radiation Center, T.-C. CHIANG, Univ. of Illinois at Urbana-Champaign — Synchrotron-based angle-resolved photoemission spectroscopy has proven to be a powerful tool in the elucidation of electronic structure of solids. The technique is now being applied to a wide variety of materials, and the macroscopic sampling area has become a limitation. For example, cleaving may expose different crystal planes, and the area covered by the incident photon beam may then consist of a collection of small domains with different photoemission spectra. The result is an average which obscures the true nature of the material. For this reason a beamline with a small focus has been proposed to be used with an angle-resolved photoemission endstation at the Synchrotron Radiation Center in Stoughton, WI. Reflective optics would be used to produce a microfocus at the sample of the light from an undulator beamline, providing submicron spatial resolution, while electron emission angles and energies are measured using an imaging electron energy analyser. The microfocusing optics and possible applications will be discussed.

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