

Abstract Submitted
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Microfocusing options for sector 3 of the Advanced Photon Source upgrade project¹ A.M. ALSMADI, Umm Al-Qura University, A. ALATAS, J. ZHAO, L. YAN, L. GAO, E.E. ALP, Argonne National Laboratory — Synchrotron radiation from third generation, high-brilliance rings is an ideal source for x-ray microbeams. The aim of this report is to describe a microfocusing scheme that combines both a toroidal mirror and a Kirkpatrick-Baez (KB) mirrors for upgrading the existing optical system for inelastic x-ray scattering experiments at sector 3 at the Advanced photon Source (APS). Shadow ray tracing simulations show that this combination can provide beam sizes of $4.5 \mu\text{m}$ (H) \times $0.6 \mu\text{m}$ (V) (FWHM) at the end of the existing D-station (66 m from the source) with a transmission of up to 59 % and a beam size of $3.7 \mu\text{m}$ (H) \times $0.46 \mu\text{m}$ (V) (FWHM) at the front end of proposed E-station (68 m from the source) with a transmission of up to 57 %. With this new setup, experiments that combine high pressure, low temperature and external magnetic field can be done.

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