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Middle energy beamline for Max-Planck Korean initiative at Pohang Light Source

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The construction of a beamline covering a wide energy range of 250 eV ~ 3000 eV is going on at Pohang Light Source (PLS). In order to provide sufficient photon flux up to 3000 eV with grating optics, the beamline is designed to use just four reflection optics with highly grazing angles. A Hetterick style monochromator with various incident angles is adopted under entrance slitless configuration. The first and the last mirrors are toroidal and they are configured to compensate the line curvature errors of them to each other. The beamline is dedicated for X-ray Magnetic Circular Dichroism (XMCD) and soft X-ray scattering (SXS). All the optical parameters are optimized by an analytical code based on the optical path function theory. The grating efficiency is also calculated rigorously by differential methods. The calculation is verified by ray-tracing too. The construction is going on under the program of Max-Planck Korean Initiative and will be done by June, 2016. In this talk, the design details and the current construction status will be presented.

Keywords

beamline, XMCD, SXS, magnetism, monochromator, Hetterick, Monk_Gillieson, PLS, grating

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