Mo/Y, Ru/Y, and Ru/Mo/Y/Mo multilayers analyzers for 11-nm wavelength

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Abstract:

A comparative study of three metal-yttrium multilayers, Mo/Y, Ru/Y, and Ru/Mo/Y/Mo, designed as polarizing analyzers at a wavelength of 11 nm investigates reported. For the Ru/Mo/Y/Mo multilayer, the Mo acted as as barrier layer between the Ru/Y interfaces. The multilayers were prepared by magnetron sputtering. Their performances have been characterized using the X-ray diffractometer and soft X-ray polarimeter on beamline UE56/1-PGM-1 at BESSY-II. The measured s-reflectivities at 11 nm are 38.02%, 39.84% and 43.32% for Mo/Y, Ru/Y and Ru/Mo/Y/Mo, respectively, at their quasi-Brewster angles, respectively. The Mo barrier layers suppress intermixing of Ru and Y, and so the Ru/Mo/Y/Mo multilayer provides the highest reflectivity.

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