

Developmental status of X-ray polarization sensitive mirrors.

We have developed multilayer mirrors which can reflect X-rays at Brewster angle ($\sim 45^\circ$) and hence are sensitive to X-ray polarization. We have fabricated several W/B_4C multilayer mirrors using magnetron sputtering technique with different parameters, optimizing the performance and sensitivity at soft X-ray region (photon energy < 1 keV). We have developed a conceptual design for a broad-band X-ray polarimeter using X-ray optics and multilayer mirrors. These mirrors have polarization sensitivity for soft X-rays. In order to improve the overall performance of the instrument, these mirrors are made transparent to hard X-rays by etching out the substrate. These type of mirrors act as polarimeters for soft X-rays while transmitters for hard X-rays simultaneously which has tremendous applications for astronomical X-ray polarimetry. I will present the design of an X-ray polarimeter instrument along with the developmental and test results of substrate etched W/B_4C multilayer mirrors.