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TITLE: Novel x-ray optics for CAST and for astrophysics applications

ABSTRACT:

Grazing incidence mirrors coated with single-layer or multilayer materials are essential components of astronomical telescopes that capture images of the x-ray universe in the photon energy range from a few tens eV to a hundred keV. A novel approach for fabrication of full-revolution mirror substrates made of polycarbonate material is presented. This technique could be a viable approach for instruments with modest resolution (>30 arcsec), and could ease greatly the cost and effort required to polish and align grazing-incidence, nested-shell mirror systems. Based on this approach, we have designed and fabricated a prototype x-ray collimator for the CAST experiment, and will present results on the development of this optic.