

## **Next generation x-ray optics for astrophysics: high resolution, light weight, and low cost**

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We report on the status of an X-ray optics development effort at Goddard Space Flight Center. The development effort is designed to enable future flagship missions like Lynx in the long term and to support Probe missions and Explorer missions like AXIS, HEX-P, and LEM, in the near term. It takes into consideration the three major work areas of building an X-ray mirror assembly, i.e., technology, engineering, and production, while focusing its resources on developing and maturing a technology based single crystal silicon. Boiled down to the most essentials, the development tackles four major technical areas: fabrication, coating, alignment, and bonding of thin, lightweight mirror segments. The technology is based on single crystal silicon, whose lack of internal stress makes it possible to use many polishing techniques to make the best possible thin, lightweight mirror segments. We will report results achieved with repeated building and testing mirror modules, as well as knowledge and lessons learned in each of the four technical areas.