Interferometry: The Future of X-ray Astronomy

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Synthetic aperture telescopes have played a major role in radio astronomy for decades, enabling ultrahigh resolution images of the sky. Recently, interferometry techniques have been applied with success in the infrared and visble portions of the spectrum. But the x-ray band has lagged behind, despite the brightness of the sources, and the short baselines needed to achieve high resolution. X-ray optics have been considered of too low quality to support interferometry. I will show how the problem of x-ray optical quality has been solved and present fringes from a laboratory model x-ray interferometer. I will also discuss the exciting science that can result from x-ray interferometry and report on NASA's current mission planning.