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SYMPOSIUM ON TECHNOLOGICAL REQUIREMENTS FOR FUTURE SPACE ASTRONOMY AND SOLAR-SYSTEM SCIENCE MISSIONS (A7)
Technology Needs for Future Missions, Platforms (3)

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EUROPEAN X-RAY OPTICS FOR NEXT GENERATION SPACE OBSERVATORIES

Abstract

X-ray space telescopes are frequently identified as high priorities for future scientific missions by many space agencies. Their enabling technology requirement is a x-ray mirror with a large collecting area, low mass and high optical resolution. The European Space Agency has developed the Silicon Pore Optics technology to fulfil the needs for future x-ray missions. Silicon Pore Optics use existing components, processes and tools from the semiconductor industry, for example super-polished wafers, wet-chemical processing steps or robotic tools for mass production. This technology spin-in demonstrates how to successfully profit from non-space industries and their large resources for research and development.

We will present the manufacturing process of Silicon Pore Optics, the achieved optical performance and their technology readiness level. Applications for different mission profiles will be discussed. We will highlight and explain the successful collaboration between companies and institutes coming from the semiconductor industry and the aerospace sector as an example how to use existing investments outside the space industry. An outlook for the next development steps to prepare Silicon Pore Optics for a flight program will be given.