



X-RAY ASTRONOMY 2019

Current Challenges and New Frontiers in the Next Decade

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Astrophysics with the Athena/WFI in the 2030ies

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The Wide Field Imager (WFI) is powerful new spectral-imaging camera for Athena, ESA's next large X-ray observatory to be launched in the early 2030ies. The WFI will provide two defining capabilities to mission, sensitive wide-field imaging spectroscopy over a 40x40 arcmin field of view with an angular resolution of 5" HEW, and the power to observe even the brightest X-ray point sources with very high throughput and low pile-up. In this talk we will present the key science drivers, which include uncovering typical supermassive black hole (SMBH) activity at $z>6$, into the dark ages where the first stars and galaxies formed; performing a complete and quantified census of black hole activity at $z=1-4$, including the most obscured objects; pinpointing the hot gas occupying the most massive dark matter haloes at $z>2$ when the first groups and clusters of galaxies formed; measuring the temperature and abundances of clusters of galaxies out to their virial radius; and performing spectral-timing measurements of bright compact sources to determine the structure of the innermost accreting regions. In addition we will explore further opportunities that will be enabled by the capabilities of the instrument.

Topic

Future missions

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