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NewAthena: an European flagship X-ray observatory

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Abstract

NewAthena is a large mission selected by ESA within its Cosmic Vision Program to address the Hot and Energetic Universe scientific theme, to be launched in the late 2030s. After undergoing a design-to-cost exercise, it will be a large open X-ray observatory, operating in the 0.2-12 keV energy band, and offering spatially-resolved X-ray spectroscopy and deep wide-field X-ray spectral imaging, with a performance parameter space greatly exceeding that offered by current or planned X-ray observatories, and therefore expected to impact all branches of astrophysics.

It will provide a unique perspective on some pressing questions in modern astrophysics such as: How do black holes grow and influence the Universe? How does ordinary matter assemble into the large scale structures that we see today? How are the metals produced, and how are they distributed through the Cosmos? What is the equation of state regulating matter in neutron stars? What is the astrophysical nature of the most common cosmic sources of neutrinos and gravitational waves? What is the impact of stellar flares on planetary environments?

In this talk I will show how *NewAthena* will provide decisive answers to those questions in the multi-wavelength and multi-messenger-facility-rich environment of the 2030s and beyond.

My talk in zenodo.org can be found here