The Athena X-ray Observatory

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Abstract

The Advanced Telescope for High Energy Astrophysics (Athena) is the upcoming large X-ray Observatory to be implemented as the second large mission of the Cosmic Vision science program of the European Space Agency, with contributions from the United States and Japan. Dedicated to the study of the Hot and Energetic Universe, Athena will carry a large aperture X-ray telescope, and two complementary focal plane instruments: the Wide Field Imager (WFI) and the X-ray Integral Field Unit (X-IFU). In this talk, I will briefly recall the prime scientific objectives of Athena: i) understanding the formation, the dynamical and chemical evolution of large scale structures, ii) the formation, the growth, the evolution of black holes, and their role in shaping the Universe, through feedback. To achieve these scientific goals, the anticipated performances of the payload will make Athena a versatile facility available for a wide range of additional science, covering planets, stars, compact objects, galaxies, the interstellar medium... I will then describe the mission profile and the science payload, emphasising on its X-IFU, whose breakthrough capabilities in spatially resolved high resolution spectroscopy will contribute to make Athena the most powerful X-ray observatory ever launched. I will report on the latest status of the mission. Athena to be launched at the start of the 2030s.

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