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Iucaa scientists to study black holes

India To Launch Astrosat To Boost Research

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Pune: Black holes, their size and depth have been a topic for research for decades. Pune-based Inter-University Centre for Astronomy and Astrophysics (Iucaa) will jump onto the bandwagon when it undertakes a study on black holes using an astronomy-specific satellite called Astrosat which would be launched by India next year.

A black hole is a place in space where the gravity pull is so much that even light cannot get out. The gravity is so strong because matter has been squeezed into a tiny space. This can happen when a star is dying, according to National Aeronautics and Space Agency.

Scientist Dipankar Bhattacharya from Iucaa would be working with Italy's Tomaso Belloni, an expert on X-ray timing and spectral studies of black hole systems. The Union ministry of science and technology and the ministry of foreign affairs, Italy have given grants for the project to Bhattacharya.

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Astrosat addresses several scientific problems, among them the nature of matter flow and radiation that is very close on the horizon of a black hole. Bhattacharya said, "The ultimate goal is to estimate the mass and spin of these black holes and the nature of space-time around them. We will characterize these black holes with respect to the weight and movement which will help us determine how they were formed."

Scientists working on the project will study this through a detailed investigation of the radiation received from black holes. The study is called the 'timing study'. Scientists will also simultaneously study the spectrum of the X-rays ranging from ultraviolet to hard X-ray bands. "Astrosat will be uniquely capable of some of these studies, and many of us at Iucaa are deeply interested in it," Bhattacharya said.

Belloni and his team have developed several software tools to analyse the data received from space. He is working on a special software that will be customised for Atrosat which will enable Iucaa scientists to analyse the intensity of radiation of the X-rays.

Bhattacharya and Belloni will prepare the groundwork for the development of the software to analyse the data once the satellite is launched.