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国台学术报告 NAOC COLLOQUIUM

2022 年 第 3 次 / No. 3 2022

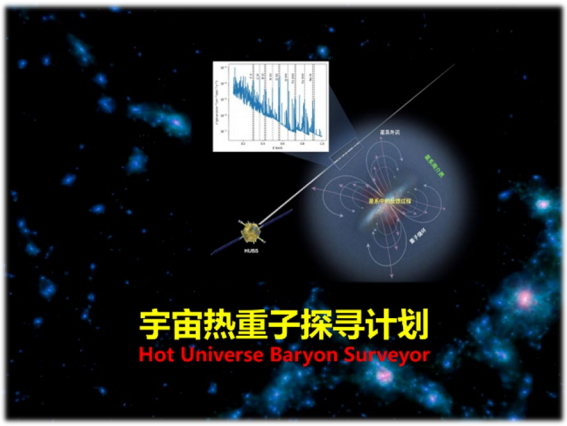
Time: Wednesday 2:30 PM, July.13th Location: A601, NAOC

Witnessing A New Era of X-ray Astronomy

Prof. WEI CUI (Tsinghua University)

Prof. Wei Cui obtained a Ph.D. degree in physics in 1994, from the University of Wisconsin–Madison, where he participated in the pioneering work of developing microcalorimeters for X-ray Astronomy. After graduation, he moved to MIT and worked on the development of the RXTE satellite as Research Scientist at the Center for Space Research. In 2000, he joined the faculty of the Department of Phyiscs at Purdue University， where he played leading roles in the development of VERITAS, a state-of-the-art ground-based TeV gamma ray facility, and contributed to the development of LSST, a premier optical survey telescope. In 2018, he joined the faculty of the Department of Astronomy at Tsinghua University, establishing the Low Temperature Detector Lab and leading an effort to develop key technologies for the Hot Universe Baryon Surveyor (HUBS) project. Prof. Cui's research interests lie mainly in the areas of galactic ecosystem, high resolution X-ray spectroscopy, low temperature detector, and instrumentation.

Abstract



With the imminent launch of the Japanese satellite XRISM next year, the field of X-ray astronomy will be entering an era of spatially-resolved, high-resolution spectroscopy, as driven by the technologies of a novel X-ray imaging spectrometer based on an array of microcalorimeters. Through sounding-rocket experiments and the (failed) Hitomi satellite in the past, the prospect of such a spectrometer bringing major scientific breakthroughs is highly exciting. All eyes will be on XRISM to witness the full potential of microcalorimeters with a dedicated X-ray mission. Looking further into the future, ESA has approved the Athena satellite for launch in the early 2030s in Europe, while key technology development is ongoing for the HUBS project in China. Both Athena and HUBS will employ a new generation of microcalorimeters, based on superconducting technologies, which is expected to deliver superior spectral resolution. In this talk, I will briefly review key milestones in the development of X-ray astronomy, leading to the new era of the field, and highlight some of the key unresolved scientific issues that are expected to be addressed in the new era.

All are welcome ! Tea, coffee will be served at 2:15 PM.