

第 48 回 RESCEU コロキウム



東京大学大学院理学系研究科 附属ビッグバン宇宙国際研究センター

日 時: 2021 年 3 月 25 日(木) 16:00 ~ 17:00

場 所: オンライン (Zoom)

講 師: Hiroki Akamatsu 氏 (SRON Netherlands Institute for Space Research)

Energetics of galaxy clusters and cryogenic probes for future astronomical applications

Abstract

Galaxy clusters are the largest gravitationally bound structures that grow via accretion and mergers. Such mergers introduce shock structures and turbulence in the intracluster medium (ICM). Although these processes are important to understand cluster energetics and their evolving history, the detailed nature is largely unknown. I will talk about X-ray (Suzaku/XMM-Newton/Chandra) and radio (mainly LOFAR) multi-wavelength approach on these issues. I will also touch on recent findings of an interplay between AGN jet and (compressed) cluster magnetic field revealed by MeerKAT radio telescope.

In the last part of this contribution, I will briefly report recent progress on cryogenic instruments toward X-ray, infrared astronomy, and exoplanet investigations. New instruments will bring us new ways to study the universe. Transition Edge Sensors (TESs) spectrometers/bolometers are one of the most promising candidates for future applications. TESs are thermistors working at a rather low temperature around 100 mK at the edge of superconducting transition. The sharp transition makes spectrometers sensitive for various wavelengths (infrared, optical, and X-ray). In the coming decades, the cryogenic spectrometer will be a mainstream of astronomical instrumentations.

興味をお持ちの方の聴講を歓迎致します。