

## AGN Feedback to Cosmology: eROSITA's Distinct Perspective on Large-Scale Structure

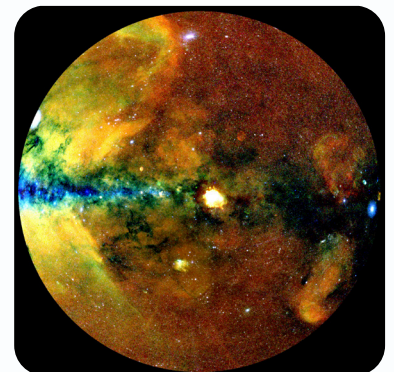


Colloquium talk  
with

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Galaxy clusters, representing the peaks in the cosmic density field, serve as an independent and powerful tool for investigating the evolution of cosmic structures. The strategic identification of these clusters through multi-wavelength surveys is essential for advancing our understanding of gravitational theory, general relativity, and cosmological models. A significant milestone was achieved with the successful launch of eROSITA in July 2019. The German-built eROSITA X-ray telescope, on board the Russian-German Spectrum-RG (SRG) mission, operates within the 0.2-8 keV range and has produced the largest Intra Cluster Medium (ICM)-detected catalogs of galaxy clusters and groups through its first All-Sky Survey. With over 10,000 confirmed clusters, the survey is pivotal in refining cosmological parameters when combined with the data from optical surveys like DESI Legacy, DES, HSC, and KIDS. These parameters are constrained at a percentage level through the evolution of the cluster mass function, representing a significant leap forward, exhibiting a 5-9 times improvement compared to previous cluster surveys. In this talk, I will outline the constraints on fundamental cosmological parameters, neutrino masses, and general relativity derived from the first eROSITA All-Sky Survey. Additionally, I will present eROSITA's significant detection of warm baryons within cosmic filaments identified by optical surveys and the implications for our understanding of AGN feedback in group-size haloes. I will summarize the value-added products made available to the science community by the eROSITA consortium's data release.



Tuesday, 01.04.25, 16:30



HS C, Victor-Franz-Hess-Haus

**Organizers:** Katrin Erath-Dulitz, Hanns-Christoph Nägerl, Tim Schrabback