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X-RAY FLARES FROM THE NUCLEI OF LOW-MASS GALAXIES

21 Feb. 2023 · 3:30 pm ET · Bell Room (Rutherford 103)

The eROSITA X-ray telescope observed hundreds of thousands of X-ray sources in each of the four all-sky surveys completed to date. Its unprecedented survey capabilities unveiled several cases of extreme transient X-ray activity in nearby galactic nuclei. Particular emphasis will be put on X-ray quasi-periodic eruptions (QPEs), high-amplitude X-ray bursts repeating every few hours and originating in the nuclei of low-mass galaxies. They provide a new channel to study how massive black holes are activated in dwarf galaxies, a poorly explored regime of their co-evolution. Currently only a handful of such sources are known, half of which discovered by eROSITA (e.g. Arcodia et al., 2021). I will give an overview of the multi-wavelength observational properties of QPEs and of the models proposed to explain them. Models focusing on a stellar-mass orbiter around massive black holes have gathered significant attention. This would increase the similarities between QPEs and total (and repeated partial) disruptions of stars in galactic nuclei, which have also been revolutionized by eROSITA's all-sky survey capabilities.

TSI Seminar Series

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