X-RAY ASTRONOMY 2019
Current Challenges and New Frontiers in the Next Decade
8-13 September 2019
CNR/INAF Research Area, Bologna, Italy

Contribution ID: **71** Type: **Contributed**

Extraordinary X-ray variability from an intermediate-mass black hole

Wednesday, 11 September 2019 15:00 (15 minutes)

We report results from a series of X-ray observations of a local galactic core whose long-term properties over the course of the past ten years are consistent with a long-lived tidal disruption event. A new spectacular phenomenon is occurring in this system 2018 December onwards, when XMM-Newton has discovered massive, repeating X-ray flares. During these "quasi-periodic eruptions" (or QPEs) the X-ray count rate is two orders of magnitude higher for about one hour, repeating every nine hours. We present the most relevant QPE properties and we discuss (some of the) possible interpretations of this new phenomenon. Our results may provide clues on the origin of the soft X-ray excess in AGNs as well as a framework within which to interpret the unfeasibly rapid variability of the growing population of "changing-look" AGNs and other highly variable objects.

Topic

Active Galactic Nuclei: accretion physics and evolution across cosmic time

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Session Classification: ACTIVE GALACTIC NUCLEI