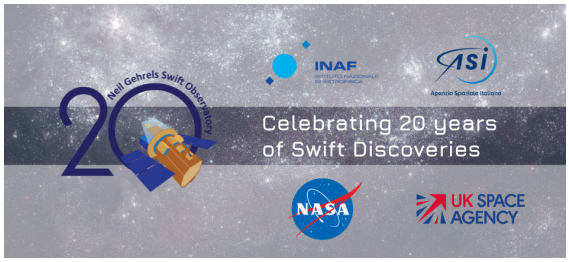

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Quasi simultaneous radio/X-ray observations of the newly discovered accreting millisecond X-ray pulsar SRGA J144459.2-604207

Tuesday 25 March 2025 14:29 (1 minute)

SRGA J144459.2-604207 is a newly discovered X-ray binary transient. First detected by the SRG/ Mikhail Pavlinsky ART-XC telescope on February 21, 2024, the X-ray detection was then confirmed by the MAXI instrument on-board of the ISS. NICER data taken on February 21 evidenced the presence of an X-ray pulsation at approximately 447.8 Hz and of type-I X-ray bursts, establishing that SRGA J144459.2-604207 is an accreting millisecond pulsar. Observations at different wavelengths have been carried out searching for counterparts. As a part of X-KAT, a large MeerKAT open time programme to observe X-ray binaries in the radio band in coordination with large X-ray and optical monitoring programmes, we initiated a radio follow-up of SRGA J144459.2-604207. We also observed SRGA J144459.2-604207 in the X-ray with the Neih Gerels Swift Observatory (Swift), as a part of the SwiftKAT programme, which provides quasi-simultaneous X-ray coverage of the target. The source was detected with XRT on February 22, exhibiting a clear type-I X-ray burst. Radio monitoring consisted of weekly observations conducted from February 22 to March 16, 2024. While SRGA J144459.2-604207 was not detected, we managed to constrain its radio emission. We placed our results in the X-ray vs radio luminosity plane, showing that SRGA J144459.2-604207 is the accreting millisecond pulsar with the lowest radio flux to date.

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