



X-RAY ASTRONOMY 2019

Current Challenges and New Frontiers in the Next Decade

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X-RAY TO RADIO STUDIES OF TRANSITIONAL BINARY SYSTEMS

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Transitional binaries are accreting pulsars observed in both Low Mass X-ray binary (LMXB) and Millisecond Radio Pulsar (MSP) phase.

They are considered the "smoking gun" of the so-called recycling scenario, first proposed in the 70s to describe the acceleration of radio pulsars to millisecond periods.

They alternatively emit their pulsation in radio or X-rays depending on the accretion phase they are in. Polarimetry measurements of the systems in both states will yield a better determination of the magnetic field at the disk edge in order to study the centrifugal inhibition of accretion of a peculiar propeller state for these systems.

We examine the case of the three known transitional systems for which the combination of radio observations with the Sardinia Radio Telescope (SRT) and the Imaging X-ray Polarimetry Explorer (IXPE) will address a number of unresolved questions on these intriguing objects and on neutron star evolution.

We present the results of simulations which show the feasibility of the expected goals within IXPE observing cycles.

Topic

Multi-messenger and transient astronomy

Affiliation

INAF - Osservatorio Astronomico di Cagliari

Primary authors: PILIA, Maura (Istituto Nazionale di Astrofisica (INAF)); Mr CASULA, Gianluca; Mr STINTINO, Nunzio; Dr XIE, Fei (INAF); POSSENTI, Andrea (Istituto Nazionale di Astrofisica (INAF)); Dr BACHETTI, Matteo (Osservatorio Astronomico di Cagliari); TROIS, Alessio (Istituto Nazionale di Astrofisica (INAF))

Presenter: PILIA, Maura (Istituto Nazionale di Astrofisica (INAF))

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