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Galactic transients: X-ray binaries: accretion & feedback around stellar-mass compact objects

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The inflow of matter onto astronomical objects is connected to the generation of outflows throughout the Universe on a variety of scales, from proto-planetary disks, to merging neutron star systems and gamma ray bursts, to stellar mass and supermassive black holes.

The matter inflow/outflow processes scale predictably with mass, and proceeds according to the same basic principles around all collapsed objects. Super-massive black holes have driven the evolution of galaxies and regulated star formation through accretion and feedback. In accreting low-mass X-ray binaries - the low-mass counterparts of super-massive black holes - a stellar mass black hole or a neutron star feeds from an accretion disc that is formed by the material stripped from a stellar companion.

Low-mass X-ray binaries hosting either stellar mass black holes or neutron stars are the most common type of transient in the Galaxy, and show bright jets clearly detected in radio. I will focus on black hole X-ray binaries, and I will give an overview of the properties of jets in these systems. I will review the most important science that has been done with the MeerKAT telescope in the X-ray binary field, and I will mention the opportunities that the advent of SKA will offer.

Research area

Our Galaxy

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