

Disk-jet coupling in Galactic Black Hole transients in the era of SKA

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Galactic Black Hole (BH) transients show coupling between the generation of jets and the processes of accreting (i.e., disk-jet coupling) around the central engines. During their hard and quiescent states the radio emission from the compact jets are non-linearly correlated to the X-ray emission from the inner accretion flow, which as an observational tool plays an unparalleled role in supporting and understanding disk-jet coupling. In this talk, I will be firstly showing you the general picture of such coupling for these transients mainly in observation, and some associated physical attempts invoked. Then, I will give case studies for a few BH transients based on our MeerKAT (a SKA precursor telescope) radio and coordinated X-ray observations under the MeerKAT Large Survey Project—ThunderKAT, highlighting how MeerKAT and near-future radio arrays (e.g., SKA and ngVLA) are trying to pin down some unanswered questions, such as: (1). The underlying physical mechanism of disk-jet coupling and jet production; (2). Why are the ‘radio-quiet’ branch BHs producing less powerful jets under the same accretion conditions as others; (3). Why some neutron stars behave like BHs in the fundamental plane while others not.

Topic

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