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Relativistic jets from stellar mass accreting black holes

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X-ray binaries are systems where a star orbits a neutron star or a stellar mass black hole. Due to the strong potential well of the black hole/neutron star, matter from the companion star is accreted onto the compact object, creating an accretion disk that radiates in the X-ray region of the electromagnetic spectrum. Some X-ray binaries are known to eject matter perpendicularly to the accretion disk, in the form of symmetric plasma bubbles moving away from the black hole at relativistic speeds. Such X-ray binaries are called microquasars. Over the last few years, the MeerKAT radio-telescope (SKA-mid precursor) has drastically improved the study of relativistic ejecta from microquasars, showing the ubiquity of large scale jets (up to parsec scales), such as MAXI J1348-630 and MAXI J1820+070. In 2004, two large-scale jets were discovered around the black hole X-ray binary H1743-322, after a major outburst in 2003. The emission of those jets, detected in radio and X-ray with ATCA and Chandra, was consistent with a synchrotron spectrum, due to electrons accelerated up to TeV when the relativistic jets interact with the interstellar medium.
Using an extremely rich and unexploited archive dataset from Very Large Array observations, we carry out a 600-day tracking of the discrete ejecta, in different radio bands. In this work, we present the overall evolution of the jets including motion and kinematics, interaction with the ISM and energy budget. The whole campaign represents one of the most complete dataset to study jets evolution.

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