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Calibrating the power of stellar mass black hole jets

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Binary systems with a stellar mass black hole accreting from a companion star show bright synchrotron flaring in radio through to the infrared, linked to changes in the accretion properties of the black hole and the launch of powerful transient large scale jets. Despite observations of flaring in ˜50 X-ray binary systems over 50+ years, many questions remain about the nature of this behaviour. We present the first comprehensive population analysis of synchrotron flaring from stellar mass black holes. We use an updated analysis framework allowing us in a model independent way to constrain the energy, emitting region size and magnetic field strength of the plasma. Correlations over the population of X-ray binaries with varying black hole mass, spin and accretion rate are investigated. We attempt to constrain the typical bulk velocity of the emitting plasma demonstrating whether or not the flaring from X-ray binaries is from a relativistic jet.

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