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Type : **Poster**

Catching Emission "Life-Lines" in Black Hole X-ray Binaries to Understand Relativistic Jets

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Stars are rarely born alone, often existing in pairs. When one of these stars reaches the end of its life, it can collapse into a black hole, creating a black hole X-ray binary where it feeds off the matter of its companion star. This material spins rapidly, creating a hot accretion disk (emitting X-rays) while also launching powerful, outflowing jets (emitting radio waves). To understand how these jets form, this project uses data from the Atacama Large Millimetre Array (ALMA) to identify spectral emission lines, which trace where the jets slam into the interstellar medium. It was necessary to automate high-volume retrieval, processing, and production of calibrated datasets through a custom pipeline to identify spectral emission line signatures utilizing Common Astronomy Software Application (CASA) packages. These lines are then mapped with radio astronomy imaging techniques to deconstruct jet formation and energy.

Did you give a contributed talk at CASCA 2026?

No

If you are selected for a poster, would you be interested in giving a short flash talk on your work?

Yes

What is your career level?

Undergraduate

Which keyword describes the area of focus of this talk?

Black holes

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