



Contribution ID : 13

Type : **Contributed talk**

Constraining the evolution of dynamic environments surrounding actively repeating fast radio bursts

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Fast radio bursts (FRBs) are short-duration (ms), bright (Jy-kJy) bursts of radio emission, generally originating from cosmological distances. Although thousands of FRB events have been published, the progenitor and emission mechanism of FRBs are still not well understood. While most FRBs appear to be one-off events, ~2% of FRBs have been observed to repeat. The Canadian Hydrogen Intensity Mapping Experiment (CHIME) radio telescope has detected thousands of FRBs, monitoring a large number of repeaters over multi-year baselines with a daily cadence. Radio spectra of FRBs are uniquely able to probe the properties of the plasma in the FRBs' immediate vicinity. CHIME/FRB's high time resolution (2.56 μ s) and broadband, low-frequency coverage make CHIME/FRB ideal for constraining propagation effects and monitoring them over time. Recent works have discovered secular evolution of the magnetized plasma surrounding a few peculiar repeating FRBs, linking them to young stellar remnants of massive stars. Our project builds on this work by measuring changes in the magnetoionic plasma over a timescale of months to years, for a diverse sample of ~50 repeaters observed by CHIME/FRB. By examining changes in the magnetoionic plasma for a larger population of repeaters, we aim to establish boundaries on the potential progenitor or environment for the general population of repeating FRBs.

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?

PhD

Which keyword describes the area of focus of this talk?

Transients

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Session Classification : Transients & Cosmology