

Transients in Middle Earth



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Can We Search for Slow Transients with CHORD?

The Canadian Hydrogen Observatory and Radio Transient Detector (CHORD), currently under construction, is the successor to the highly successful CHIME array, and is a flagship project of Canadian radio astronomy. Though not an original design goal, CHIME was found to be an immensely capable detector of Fast Radio Bursts, and CHORD may have unforeseen capabilities in the same spirit, as a detector of transient phenomena on day to year timescales, including TDEs, GRBs, AGN flares and more. I will present the early outcomes of my research, where I am evaluating CHORD as a detector of slow transients by combining detailed simulations and theory. I will cover the powerful advantages offered by CHORD due to its drift-scan nature, large field of view and excellent electronics, as well as the significant difficulties posed by the regular array design and how I have tried to overcome them using various image processing techniques. I will talk about the detailed imaging simulation pipeline used, which includes radiometer noise, AGN and SFGs with realistic distributions, intrinsic and extrinsic source variation, and realistic transients simulated using Redback. The potential future of CHORD for this purpose, including the ability to monitor the location of many known optical transients and the implications of an expanded CHORD array are discussed.

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