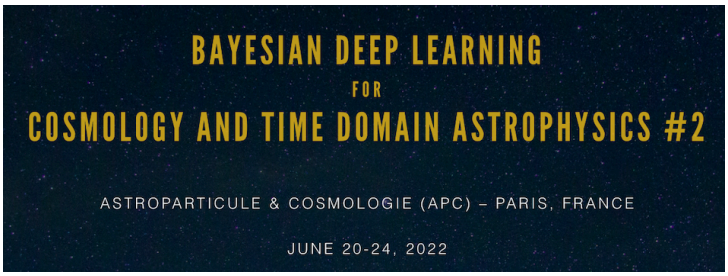

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Search for ultra-fast radio bursts

Gaussian phase noise of radio intensity time series is reduced by a factor of n when the raw voltage data are digitally filtered through n orthornormal bandpass eigen-filters, sharing the same intensity bandwidth, and the resulting intensity series are co-added. (Lieu et al. 2020) The algorithm is designed to enhance the sensitivity of detecting ultra-fast radio bursts that would otherwise be smoothed out by time averaging and too faint to be visible in a noisy unaveraged time series. We define ultra-fast to be a timescale on the order of the coherence time of the filtered radiation. We propose to use FETCH, a deep-learning based fast transient classifier, created by Agarwal et al. (2020). Here we present our progress on this front.

References

Lieu, R., et al., CQG, 37, 165001, 2020
Agarwal, D., et al. MNRAS, 497, 1661, 2020

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