



Searching for extremely narrow-band Fast Radio Bursts in the HTRU Survey

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Fast Radio Bursts (FRBs) are a class radio transients coming from outside our Galaxy. Discovered in 2007 as a single event, it was not until the Parkes-Murriyang telescope High Time Resolution Universe (HTRU) survey in 2014, that the existence of the first population of FRBs was unveiled.

FRBs typically exhibit durations in the range of several milliseconds, akin to the radio pulsar profiles. However, unlike pulsars, FRBs display a much narrower spectrum, typically spanning from a few dozen to hundreds of MHz.

Current FRB searches utilise matched filtering algorithms on frequency-collapsed time series Stokes I data. Modern receivers are equipped with remarkable observational bandwidths, often reaching several GHz. Conducting burst searches across the full bandwidth may inadvertently lead to missing certain events. A viable alternative involves performing a sub-banded search, wherein bursts are sought within limited portions of the bandwidth.

In this work I will delve into the sub-banded search technique, showing how it can significantly increase the number of the burst detections. Additionally, I will present the results of a sub-banded reprocessing of the HTRU survey, yielding a new sample of faint and narrow-band bursts.