The High Time Resolution Universe Survey

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The High Time Resolution Universe Survey for Pulsars and Radio Transients (HTRU-South) is a survey of the southern sky being performed at Parkes Radio Observatory in Parkes, NSW, Australia. The survey has increased sensitivity over previous surveys to pulsars and fast transients of high dispersion measure and high time resolution, due to the excellent time- and frequency-resolution afforded by a new digital backend. Already the survey has been successful in achieving several of the goals it was designed to accomplish: e. g. to significantly raise the known population of millisecond pulsars, to further unveil the Galactic population of rotating radio transients (RRATs; also to help characterise how these objects relate to other apparent pulsar sub-populations), and to discover extragalactic radio transients. The intermediate-latitude portion of the survey was recently completed. The deep, low-latitude portion of the survey, and the shallow all-sky portion, are currently underway. The survey has already discovered over 120 new pulsars, of which ∼15% are RRAT discoveries, and ∼20% are millisecond pulsars. It has also uncovered several strong candidates for transient pulses of extragalactic origin, which represent the most compelling case thus far for a prolific extragalactic transient population. We will review the design and status of the HTRU survey, detailing diverse results that have recently emerged from the survey: a number of pulsars with interesting companion systems, what the survey has indicated about RRATs, and the "transient" (modulation/nulling) properties of the pulsar population as a whole. We will also present an apparent population of highly-dispersed, likely extragalactic, bursts that are being discovered in the HTRU survey.

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