

95% upper limit on strain amplitude for Continuous Gravitational Wave signal using Pulsar Timing Array

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The Pulsar Timing Array (PTA) collaboration aims to detect low frequency gravitational wave signals using high precision timing observations of millisecond pulsars. The international collaboration combines data from several radio telescopes distributed throughout the world to enhance detection sensitivity. The data analysis pipelines are usually computationally expensive because of complex models and large amount of data. Here we will present how it is possible to speed up computation by first ranking the pulsars by their signal to noise ratio with respect to a continuous gravitational wave (CW) signal and keeping a subset of the best pulsars. We will then show preliminary results for sensitivity curves and 95% upper limit plots on the amplitude of CW signal.

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