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A Timing Noise Analysis Pipeline for HartRAO pulsars

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Abstract content
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Timing noise in long-term pulsar timing residuals is a challenge to our understanding of present pulsar models. The quest to shed light on the emission mechanisms of radio pulsars, has led to various key science projects ranging from the search for gravitational waves to the development of next-generation instruments for pulsar astronomy. Timing noise studies present an essential cornerstone in these projects. One possible explanation for the existence of timing noise is mode switching in the magnetosphere of the pulsar. In a long-term study we have investigated the timing noise phenomena seen in PSR J1326-5859. It was observed with the 26 m radio telescope of the Hartebeesthoek Radio Observatory (HartRAO) for several decades and provides a large variety of timing noise characteristics. In this presentation we review the timing noise analysis pipeline used for PSR J1326-5859 which can be also used for other southern hemisphere pulsars observed with HartRAO.

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