

FAST Proposal Cover Page

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Project Name:

Search for radio pulsations from PSR J2021+4026, the first variable gamma-ray pulsar

Project Summary:

PSR J2021+4026 is a young γ -ray pulsar in the γ -Cygni Supernova Remnant (SNR), discovered in a blind search of Fermi-LAT data. Deep XMM observations revealed thermal X-ray pulsations but no radio pulsations have been detected to date. In 2011, the pulsar underwent a sudden increase in spin-down rate, coincident with radiative changes (a decrease in γ -ray flux and changes in pulse profile), with its recovery taking over a year. Recently, PSR J2021+4026 underwent a similar mode change. We propose FAST observations of PSR J2021+4026 to detect radio pulsations for the first time, and monitor the correlated multi-wavelength properties of this unique pulsar, as it evolves from its current low γ -ray flux back to its normal state.