

RXTE Timing Proposal for Kes 75 Pulsar

PSR J1846-0258 Timing

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Title: Listening in on Baby - Monitoring the Youngest Known Pulsar

Abstract: The remarkable young pulsar PSR~J1846-0258 resides in the core of a Crab-like pulsar wind nebula at the center of the bright shell-type SNR Kes~75. Based on its spin-down rate and X-ray spectrum, PSR~J1846-0258 is likely the youngest known rotation-powered pulsar. Compared to the Crab pulsar, however, its period, spin-down rate, and X-ray conversion efficiency are each an order of magnitude greater, likely the result of its extreme magnetic field, above the quantum critical threshold. We propose to continue our monitoring campaign of PSR~J1846-0258 to refine our recent measurement of the braking index and search for further evidence of glitches. Furthermore, an X-ray ephemeris contemporary with GLAST is critical for a first detection of this pulsar in gamma-rays. As a bonus, these observations will also monitor the mysterious magnetar-candidate AX J1845-0258.