

FAST Proposal Coverpage

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Project Name:

Searching for the pulsar in the gamma-ray binary HESS J0632+057

Project Summary:

(A 1 paragraph summary of your project, including its scientific goals and how you will address them. This information will be potentially public.)

The gamma-ray binary HESS J0632+057 is composed of a compact object and a Be star with an orbital period of about 313 days (Moritani et al. 2018). The primary X/TeV outburst occur at orbital phase 0.3-0.4 and the secondary outburst at orbital phase 0.7-0.9, which can be interpreted in the framework of pulsar wind-Be disk interaction, similar to PSR B1259-63 and PSR J2032+4127. Indeed the three systems share many similarities. The mass of the compact object in HESS J0632+057 is constrained to be <2.5 solar mass (Moritani et al. 2018). Therefore, a pulsar is very likely to exist. We propose two one-hour observations to discover the radio pulsar.