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Abstract:

Despite the pulsar-supernova remnant (SNR) connection being well established for decades, the number of pulsars firmly associated with SNRs remains small. Both pulsars and SNRs are strong gamma-ray emitters and Fermi-LAT has detected large numbers of sources in both categories. Disentangling the SNR gamma-ray emission from the pulsar emission is challenging. We propose to use FAST to carry out the most sensitive searches for radio pulsars in six SNRs with no known pulsar associations, which are among the brightest gamma-ray sources detected by the Fermi Large Area Telescope (LAT). The discovery of pulsars in these SNRs would lead to a better understanding of the SNRs and the physical mechanisms responsible for their gamma-ray emission and also result in the independent determination of some of the most critical parameters of these neutron stars (e.g. ages and distances), likely to be among the youngest in our galaxy.