FAST Proposal Cover Page

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Project Name:

Search for radio pulsations from a central compact object and a sample of magnetars

Project Summary:

Central compact objects (CCOs) and magnetars represent the least and most magnetized neutron stars, respectively. These two subgroups have shown remarkably different observational behaviors from normal pulsars and challenged our understanding of neutron stars in many aspects. To find the relationships between diverse neutron stars and to study pulsars at extreme magnetic fields, it is crucial to know whether CCOs and magnetars emit radio emission and share the similar radiative mechanism of radio emission to normal pulsars. We propose FAST observations to search for radio pulsations from a CCO and magnetars in the northern sky. Our goal is to discover the first radio-loud CCO and to discover radio pulsations from magnetars in quiescent states. On the other hand, non-detection will also be crucial, showing that these objects are indeed radio quiet and very different from normal radio pulsars.