

Proposal Abstract:

Relativistic double neutron star systems are some of the best gravitation laboratories. In most cases, pulsar timing only offers us a chance to precisely measure the DNS's projected orbit. This problem can be alleviated in rare cases when the pulsar's scintillation can be detected. In the previous round, we observed a variation of the scintillation arcs from the DNS J1518+4904 and got initial solutions of the binary system with limited observations. The current results suggest that both the binary system and Earth's motion have a significant impact on arc variation. The orbital parameters given by the model are unstable in our fitting due to insufficient observations. Therefore, we propose to continue observing to obtain credible solutions for this binary system. This will enable us to collect critical data points for a clear determination of the system's orbit. Besides, we also found other interesting scintillation phenomena. Such as the appearance of the third arcs and the structural separation of the know outer arcs. Further observation will help us confirm these discoveries and study the structure of scintillation screens.