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Abstract:

In order to explore the practical timing precision limits achievable with the FAST for the planets pulsar, PSR B1257+12, and, possibly discover low-mass planets around it that could not be detected with the Arecibo telescope, we propose to conduct high-cadence, daily timing observations of the pulsar over a period of one month. The data collected by the proposed project will also aid in designing a future program to search for short-period, low-mass planets around a sample of millisecond pulsars using the high-cadence approach. As discussed in the literature, this is probably the best, still unexplored way to address the long standing questions related to the existence (or non-existence) of a pulsar planet population and clarifying the related problem of the mechanism of planet formation around neutron stars.