

Proposal Abstract:

We have recently completed the project PT2022_0104, which was to conduct a series of high cadence timing observations of the planet pulsar, PSR B1257+12, over a period of one month. Our observations have produced very high precision times of arrival (TOAs) of pulses from the pulsar, covering the 25-day orbital period of the inner planet in the system, but we have been unable to reconcile our data with the timing models derived from the previous, long-term Arecibo observations. Because the time baseline of our TOAs is too short to establish a reliable, Arecibo-independent timing model, we need to extend it with additional observations to cover a period of one year or more, in order to include the rotational and astrometric timing parameters and to cover several orbital periods of the outer planets in the system. This will allow us to understand the source of the observed, puzzling discrepancy between the Arecibo timing models and the behavior of the FAST data, and to achieve the original goals of our project.