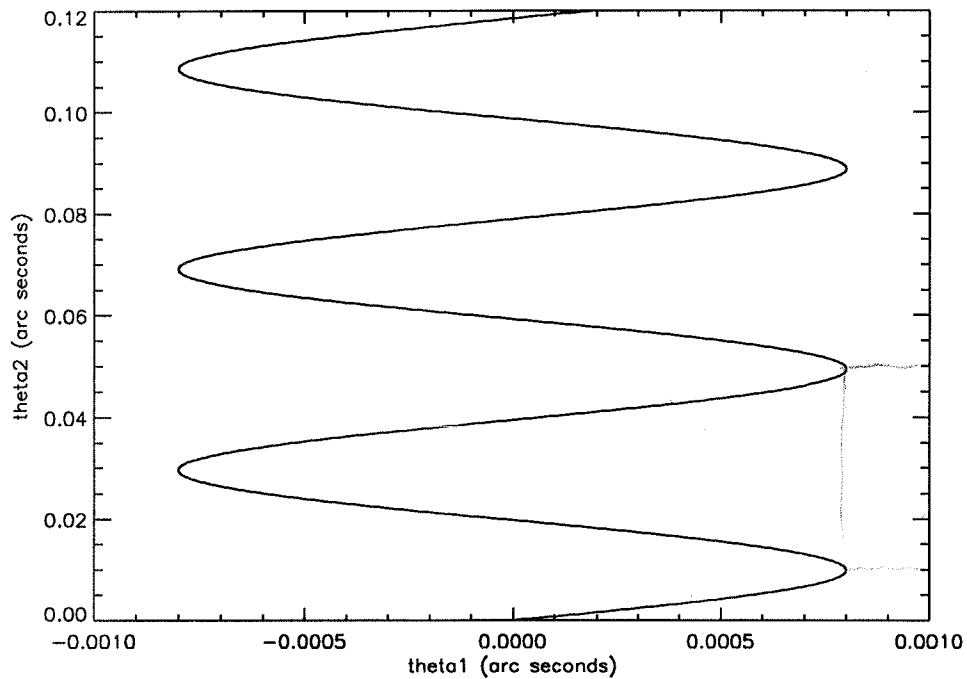


Dai?

PROBLEM 3

A new pulsar is discovered. It is observed to have a period of 1.3 seconds. It is observed for several years, and its motion on the sky is shown in the plot below, where the axes are orthogonal.

- What is the distance to the pulsar in parsecs? (3 points).
- What is the minimum velocity of the pulsar in km/s? (3 points).
- What is maximum amplitude of the period variability observed during the monitoring time period in seconds? (3 points).
- What is the size of light cylinder in km? (1 point)



Aug 2013

Astro #3

$$\begin{aligned} a) \quad d &= \frac{1}{\alpha} \text{ pc} \\ &= \frac{1}{.008} \\ &= 125 \text{ pc} \end{aligned}$$