

Abstract

The goal of my research has been to determine empirically if the partially-filled-cone emission model is an improvement over the standard hollow-cone model in explaining the observed emission characteristics of pulsars B0751+32 and B0525+21. A pulsar is a highly magnetized neutron star which emits electromagnetic radiation, and has a rotational axis that is tilted from its magnetic axis. This discrepancy causes the radiation to sweep across the line-of-sight of our radio telescopes as the star rotates, giving the radiation a pulsed appearance. The characteristic fit of these pulse-sequences to both models has been accomplished using analysis software specific to pulsar research. These analyses have revealed evidence of null-periodicity in both stars; however, neither model adequately explains the behavior exhibited by B0751+32. B0525+21 has proved to be more tenable. Further analysis pending, it appears to be a likely fit for the partially-filled-cone model.