

A survey of nulling pulsars using the Giant Meterwave Radio Telescope

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Abstract. Several pulsars show sudden cessation of pulsed emission, which is known as pulsar nulling. In this paper, the nulling behaviour of 15 pulsars is presented. The nulling fraction of these pulsars, along with the degree of reduction in the pulse energy during the null phase are reported for these pulsars. A unique nulling behaviour is reported for PSR J1738-2330, which also showed quasi-periodic bursts. The distributions of lengths of the null and burst phases as well as the typical nulling time scales are estimated for eight strong pulsars. A comparison of the nulling time scales of four pulsars with similar nulling fraction suggests that the fraction of null pulses probably does not quantify the nulling behaviour of a pulsar in full detail. Analysis of these distributions also indicate that while the null and the burst pulses occur in groups, the transition from the null to burst phase and vice versa can be modeled by a Poisson point process.
