

The geometry of PSR B0031–07

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ABSTRACT: Pulsar B0031–07 is well known for its three stable modes of drifting subpulses. Recently, Smits et al. (2005) have shown that in high frequency observations only one of the drift-modes remains visible. It is then suggested that different drift-modes are associated with different emitting field lines. This places limits on the geometry of the emitting regions of the drift-modes of this pulsar.

To further restrict the geometry, we have obtained and analysed a multifrequency simultaneous observation of PSR B0031–07. We have included two non-simultaneous observations to obtain a total of 7 different frequencies. From these observations we have determined the drift-mode of each sequence of drift, the position angle sweep, the width of the average intensity profile and P_2 for each driftmode and for each frequency. We also used a method to find the profile from the drifting emission only, enabling the construction of a model that includes both drifting and non-drifting emission. We then tried to fit two emission models in order to find the geometry that describes the observed features.