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The modification and application of the Neutrino Rocket Jet Model by long-period pulsars

With the increase of pulsar observation data, it is found that the relationship between the spin period P and its derivative P_{dot} of a long-period pulsar in the $P-P_{dot}$ diagram cannot be described by the standard magnetic dipole radiation (MDR) model. Recently, in order to explain pulsars' high-speed proper motions, we have proposed a Reutrino Rocket Jet Model (Li et al. 2022,ApJ,931,123),which is a potentially competitive model to explain the relationship between the spin periods and their derivatives of long-period pulsars. Benifitted by a increase in the number of long-period pulsars with $P > 10S$, we have made approximate calculations for the Neutrino Rocket Model, and discussed the model parameters related. Finally, we use this modified Neutrino Rocket Jet Model to discuss the related properties of five recently-discoved pulsars with long-periods.

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