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## A short review on pulsars' magnetic incline angles and their evolution

The inclination angle of magnetic to rotation axis (the inclination angle) of pulsars is an important parameter in pulsar physics. The changes in the inclination angle of a pulsar would lead to observable effects, such as changes in the pulse beam width and braking index of the star. On the one hand, a change in the charge density and/or a change in the current density in a pulsar's magnetosphere will lead to a change in the magnetospheric torque, thus the inclination angle will change accordingly. On the other hand, there are two magnetic moments inside a neutron star, one is generated by the rotation effect of a charged sphere,  $M_1$ , and the other is generated by the magnetization of ferromagnetically ordered material,  $M_2$ . The interaction between these two magnetic moments will also lead to the change of the magnetic inclination. The change in the inclination angle caused by the latter may be more permanent and sustained, but its change manner remains unclear. In this paper, we first perform a short review on the evolution of pulsar's magnetic inclination angle, as well as the latest research progress, then present possible relationships among the inclination angle, the spin-down, magnetic field decay and braking index for the Crab pulsar, and finally give some expectations on the pulsar magnetic inclination angle evolution in the future.

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