

RADIO EMISSION MECHANISMS FOR TWO TYPES OF PULSARS

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We are trying to explore the radio emission mechanisms for our two types of pulsars from fitting the observational (true) age distribution for pulsars within 5 kpc of the sun with the theoretical one:

$$\frac{dN}{dt} \propto \frac{L(t)}{\left| \frac{dL}{dt} \right|} R(L)$$

here L is the radio luminosity of pulsars, $\frac{dL}{dt}$ the luminosity derivative and R the birth rate.

Assuming that the radio luminosity of pulsars is related to P and \dot{P} with the following fomula

$$L = \alpha P^a \dot{P}^b (1+5 P^3)^c$$

here α is a coefficient, a , b and c are constants to be determined from the fitting.

The results are as follows: for Type I pulsars we should consider both the light cylinder model and the polar cap model, but for Type II pulsars, the only model we should consider is the polar cap model.