

On the search for gamma emission from the known radio pulsars and radio emission from the gamma-pulsars

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Pulsars play a crucial astrophysical role as the highly energetic compact radio, X-ray, and gamma-ray sources. Our previous works show that the radio pulsars found as the pulsing gamma sources by the Large Area Telescope (LAT) on the board of the Fermi Gamma-Ray Space Telescope [1] have high values of magnetic field near the light cylinder, two-three orders of magnitude stronger comparing with the magnetic fields for quiet radio pulsars [2-3]. Moreover, their losses of the rotation energy are also three orders higher than the corresponding values for the main group of radio pulsars on average. The correlation between gamma-ray luminosities and radio luminosities is found. It allows us to select those objects from all set of the known radio pulsars that can be detected as gamma pulsars with the high probability. We give the list of such radio pulsars and propose to search for gamma emission from these objects. On the other hand, the mentioned catalog of gamma pulsars contains some sources which are not known as radio pulsars at this moment [4]. Some of them have the large value of gamma luminosities and according to the obtained correlation, we can expect a noticeable radio emission from these objects.

References

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