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Magnetars and long period radio pulsars

Recently another long period radio pulsar GPM J1839–10 is reported, similar to GLEAM-X J162759.5–523504.3. Previously, the energy budget and rotational evolution of long period radio pulsars had been considered. This time, the death line and pulse width for neutron star and white dwarf pulsars are investigated. The pulse width is included as the second criterion for neutron star and white dwarfs pulsars. It is found that: (1) PSR J0250+5854 and PSR J0901–4046 etc should be normal radio pulsars. They have narrow pulse width and they lie near the radio emission death line. (2) The two long period radio pulsars GLEAM-X J162759.5–523504.3 and GPM J1839–10 is unlikely to be normal radio pulsars. Their possible pulse width is relatively large. And they lie far below the fiducial death line on the P-Pdot diagram. (3) GLEAM-X J162759.5–523504.3 and GPM J1839–10 may be magnetars or white dwarf radio pulsars. At present, there are many parameters and uncertainties in both of these two possibilities

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