What is special about HBRPs - High magnetic field radio pulsars

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ABSTRACT: The Parkes Multibeam Survey led to the identification of a number of long-period radio pulsars with magnetic field well above the 'quantum critical field' of $\sim 4.4 \times 10^{13}$ G (HBRPs). Traditional pulsar emission theories postulate that radio emission is suppressed above this critical field.
Although HBRPs and magnetars have similar spin parameters, their emission properties are different. It has been suggested that pulsar-like objects could evolve from normal radio pulsars to magnetars. Some authors argued that the initial neutron stars spin periods may depend critically on their magnetic fields, in particular, there is a tendency for high field systems to be born as slow rotators. These suggestions may reveal a missing link between radio pulsars and magnetars.
The aim of this project is to understand emission properties of HBRPs. We hope to provide solid constraints on HBRPs radio emission characteristics by comparing HBRPs properties with the properties of normal pulsar population using their radio multi-frequency and high time resolution data.