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Ultra-long Period Radio Sources - Are they Magnetars?

Tuesday, 9 July 2024 15:50 (25 minutes)

In this talk I will make the case that ultra-long period radio pulsars are magnetically powered neutron stars, or magnetars in the broadest sense of the term. Although they appear very different observationally from X-ray magnetars, I will argue they host strong magnetar-like fields. This will encompass arguments from many directions, including source densities, energetics, the physics of how coherent radio emission works in normal pulsars, and observational constraints. The existence of such objects opens an exciting new avenue of possibilities, which I will briefly discuss, including unexplored evolutionary tracks for neutron stars, extragalactic detections of these objects in nearby galaxies, and the possibility some will be involved in binary neutron star mergers. These sources, as ultra-long period magnetars, may also be closely linked with periodic windowing of activity seen in some extragalactic repeating fast radio bursts.

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