

Electron-positron pair creation in pulsars

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Pulsars are among the most extreme objects in the universe, where physical processes work in regimes of extreme densities as well as gravitational and electromagnetic field strengths. It is widely agreed upon that pulsar activity is intimately connected to the copious generation of electron-positron pairs in the magnetosphere - a rapidly rotating magnetized neutron star is active as pulsar only as long as it can create pairs. Here I briefly overview recent progress in theoretical studies of pulsar magnetospheres and report on the most recent results of self-consistent numerical simulations of pair creation in pulsars. I discuss the implication of these results for our understanding of the physics of pulsars and Pulsar Wind Nebulae.

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