"Pulsars and Magnetars: facts and possible fiction"

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Abstract

Anomalous X-ray Pulsars (AXPs) and Soft Gamma-ray Repeaters (SGRs) are relatively young, isolated neutron stars, that are thought to have super-strong \((10^{14} - 10^{15} \text{ G})\) dipole magnetic fields and even larger internal toroidal magnetic fields. Thus, they were given the name Magnetars. I will examine if this is a fact or possible fiction. I will present an alternative picture and I will discuss what it will take to decide between the two pictures.