Magnetic fields in neutron stars and models of thermal emission from magnetic neutron stars

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Abstract

The excellent sensitivity of X-ray telescopes, such as Chandra and XMM-Newton, is ideal for the study of cooling, isolated neutron stars, which emit at these energies. In order to exploit the wealth of information contained in the data, a thorough knowledge of the radiative properties of neutron stars is necessary. A key factor affecting photon emission is magnetic fields, and neutron stars are known to have strong surface magnetic fields (B > ~ 10^11 G). Here I describe our work on constructing magnetic atmosphere models of neutron stars and comparing model spectra to observations. I also discuss evolution and diversity of magnetic fields in the different classes of neutron stars.

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