

APR06-2006-020014

Abstract for an Invited Paper
for the APR06 Meeting of
the American Physical Society

Solar physics of magnetars

MAXIM LYUTIKOV, UBC

Two closely related types of neutron stars – Anomalous X-ray Pulsars and Soft Gamma Ray Repeaters, commonly called magnetars – possess magnetic fields exceeding quantum critical fields. Dissipation of these fields powers persistent and bursting emission and produces occasionally giant flares. Using analogies with the Sun, I will describe magnetospheric structure of magnetars, the way magnetic dissipation can proceed in the relativistically strong regime and how giant flares, analogues of coronal mass ejections, may develop. Finally, I will discuss how the observed non-thermal spectra can be formed through resonant cyclotron scattering of surface radiation.