

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

Magnetars

KEVIN HURLEY, UC Berkeley Space Sciences Lab.

A growing body of evidence has accumulated over the past 10 years that there is a class of Galactic neutron stars with magnetic field strengths of the order of 10^{15} G - the strongest known fields in the universe. These magnetars come in at least two classes, the soft gamma repeaters and the anomalous X-ray pulsars (SGRs and AXPs). I will review the observations of the SGRs, which sporadically emit short pulses of X-rays (energies up to ~ 100 keV) and more rarely, giant flares with gamma-rays into the MeV range and the most intense fluxes ever observed at Earth. Studies of the SGRs suggest that they should be present and detectable in nearby galaxies, where they would appear to be short cosmic gamma-ray bursts. I will discuss the evidence that such a burst has been observed.