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Highly magnetic neutron stars: an observational review

Alice Borghese

Magnetars are the strongest magnets we know of. Their X-ray emission is powered by the instabilities and decay of their huge magnetic field ($\sim 10^{14}$ - 10^{15} G). The hallmark of these isolated neutron stars is the unpredictable and variable bursting activity observed in the X-/gamma ray regime and on different time scales (from milliseconds up to tens of seconds). These flaring episodes are often accompanied by enhancements of the persistent X-ray flux, which usually relaxes back to the quiescent level over months to years, the so-called outbursts. In this talk, I will review the observational properties of magnetars, showing a systematic analysis of outbursts and new results in the field. I will then finish with some considerations on magnetar-like activity from other classes of neutron stars and the possible evolutionary links between different neutron star families.