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The magnetic field role in low mass X-ray binaries

The magnetic field of most of the neutron stars in low mass X-ray binaries are much weaker than in younger systems such as neutron stars with a high mass companion, magnetars and most of the radio pulsars. Nonetheless, even a low magnetic field may have a significant impact on the flow of matter transferred by the companion star: plasma is either accreted or ejected depending on the balance between the infalling matter and the pressure of the electromagnetic field and radiation emitted by the neutron star. A class of recently discovered transitional millisecond pulsars showed that a single source can switch between different states over a few days or even less, following variations of the mass in-flow rate. I will review the rich and complex phenomenology of low-magnetic field pulsars in X-ray binaries, highlighting lessons learned and problems yet to be solved.

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