Pulsed thermal emission in the accreting pulsar HMXB XMMU J054134.7-682550 reveals accretion geometry

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Abstract: The LMC source XMMU J054134.7-682550 has been observed by RXTE and XMM-Newton during an outburst in August 2007 lasting for 50 days and reaching $L_{0.2-10keV} \sim 10^{38}$ ergs s⁻¹ and $L_{5-30keV} \sim 2.5 \times 10^{38}$ ergs s⁻¹. The source was detected before, during and after the outburst. Cyclotron absorbing lines have been detected, corresponding to a magnetic field $\sim 10^{12}$ Gauss. The pulse period varies over the outbursts. A soft X-ray excess was detected below 1 keV. It features an independent pulsation when compared to that of the hard X-ray component. The soft excess provides constraints on the reprocessing geometry.

