

Strong evidence for precession of the isolated neutron star RX J0720.4-3125

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The XMM-Newton spectra of the isolated neutron star RXJ0720.4-3125 obtained over 4.5 years show sinusoidal variations in the inferred blackbody temperature, the size of the emitting area and the depth of the absorption line with a period of ~ 7.1 years, which we suggest to be the precession period of the neutron star. Precession of a neutron star with two hot spots of different temperature and size, probably not located exactly in antipodal positions, may account for the variations in the X-ray spectra, changes in the pulsed fraction, shape of the light curve and the phase-lag between soft and hard energy bands observed from RX J0720.4-3125.