

N06a Discovery of an 11-s X-Ray Pulsar on the Galactic Plane in Scorpius

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During the Galactic plane survey with ASCA in September 1996, we detected a relatively bright, soft source at R.A. = $17^h 8^m 46^s.6$, DEC. = $-40^\circ 9' 27''$ (J2000), and discovered a coherent 11-s X-ray pulsation from the source. This source is identified with the ROSAT source 1RXS J170849.0-400910. From timing analysis of the source, we obtained a barycentric pulse period of $P = 10.99759 \pm 0.00005$ s with a broad sinusoidal shape of a pulse fraction of $\sim 30\%$. The energy spectrum in the 0.8–10 keV is very soft and can be fitted by a power law model with a photon index 3.5 and an absorption column density 1.8×10^{22} cm $^{-2}$. The observed pulse-phase-averaged flux in the range 0.8–10 keV is 4.3×10^{-11} erg cm $^{-2}$ s $^{-1}$, which corresponds to 1.7×10^{-10} erg cm $^{-2}$ s $^{-1}$ after correcting for soft X-ray absorption. During the observation interval of about 14 hr, neither significant change of the pulsation period, nor significant variation of the phase-averaged flux were detected. From these X-ray properties, we suggest that this newly discovered X-ray pulsar might be a member of a small subgroup of “anomalous” X-ray pulsars with period close to 6–9 s.