

# Scenes from the Life of an Exotic X-ray Binary

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Circinus X-1 is a neutron star X-ray binary system with an interesting and at times puzzling behaviour over a broad range of frequencies, specifically in X-ray and radio. Its quasi-periodic oscillations and X-ray colors exhibit dual properties, the object resembling sometimes a Z source, other times an atoll. The system seems to harbour the most relativistic outflow (likely oriented close to the line of sight) observed so far within the Milky Way. It lies within a radio synchrotron nebula and has variable radio flux densities at cm wavelengths. The radio flares associated to the orbital phase zero reached up to 1 Jy in the late '70s, then have been observed at the tens of mJy level until recently; in 2007 January, Circinus X-1 seemed to have finally reentered an active radio flaring state, after another brief reactivation in June 2005. Here we present radio observations at cm wavelengths made with ATCA (Australia Telescope Compact Array) and PAMHELA (Parkes, ATCA, Mopra Hobart Electronic Long-baseline Array) and X-ray data taken with RXTE (Rossi X-ray Timing Explorer). The goal is to characterize the system (and its evolution) at arcmin as well as arcsec scales (via radio imaging) and to understand the correlations between the two spectral windows (radio and X-ray).