The unusual radio transient in M82: an SS 433 analogue?

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In this paper we discuss the recently discovered radio transient in the nuclear region of M\,82. It has been suggested that this source is an X-ray binary, which, given the radio flux density, would require an X-ray luminosity, $L_{\rm X}\,\sim6\times10^{42}$\,erg\,s^{-1} if it were a stellar mass black hole that followed established empirical relations for X-ray binaries. The source is not detected in the analysis of the X-ray archival data. Using a 99% confidence level upper limit we find that $L_{\rm X} \leq 1.8 \times 10^{37}$\,erg\,s^{-1} and 1.5×10^{37}\,erg\,s^{-1}, using powerlaw and disk blackbody models respectively. The source is thus unlikely to be a traditional microquasar, but could be a system similar to SS\,433, a Galactic microquasar with a high ratio of radio to X-ray luminosity.

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