



# X-ray Observations of Radio Transients without Optical Hosts

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We present a 50 ks Chandra ACIS-I X-ray observation of the Bower et al. VLA archival field. The observations reach a limiting sensitivity of  $\sim 1\text{E-}4$  counts/s, corresponding to a flux of a few times  $1\text{E-}15$  erg/s/cm<sup>2</sup> for the models we explore. The Chandra observations were undertaken to search for X-ray counterparts to the eight transient sources without optical counterparts, and the two transient sources with optical counterparts seen by Bower et al. Neither of the sources with optical counterparts was detected in X-rays. One of the eight optical non-detections is associated with a marginal (2.4 sigma) X-ray detection in our Chandra image. A second optically-undetected Bower et al. transient may be associated with a  $z=1.29$  X-ray detected quasar or its host galaxy, or alternatively is undetected in X-rays and is a chance association with the nearby X-ray source. The X-ray flux upper limits, and the one marginal detection, are consistent with the interpretation of Ofek et al. that the optically-undetected radio transients are flares from isolated old Galactic neutron stars. The marginal X-ray detection has a hardness ratio which implies a temperature too high for a simple one-temperature neutron star model, but plausible multi-component fits are not excluded, and in any case the marginal X-ray detection may be due to cosmic rays or particle background. The X-ray flux upper limits are also consistent with flare star progenitors more distant than approximately 1 kpc (which would require the radio luminosity of the transient to be unusually high for such an object) or less extreme flares from brown dwarfs at distances of around 100 pc.

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