

Title

**SN2022jli: birth of an X-ray binary**

Abstract

The lightcurve of the nearby supernova SN2022jli shows a 12.5 d periodicity, suggesting that the compact object (most likely a neutron star) born in the supernova interacts with a binary companion, as predicted by recent simulations. The supernova lightcurve between day 50 and 250 d appears to be powered by super-Eddington accretion onto the compact object, suggesting that we are witnessing the birth of an X-ray binary. High-energy gamma-ray emission around day 200 supports this view and points to the existence of a relativistic jet. The system appears to resemble the Galactic X-ray binary Cir X-1, which is a strong X-ray and radio source and the youngest known X-ray binary with an age of around 4600 years. We propose to obtain deep radio observations with MeerKAT to provide direct evidence for the birth of an X-ray binary through detection of radio emission from the interaction of a relativistic jet with the CSM and to help elucidate the nature of this unique supernova event.