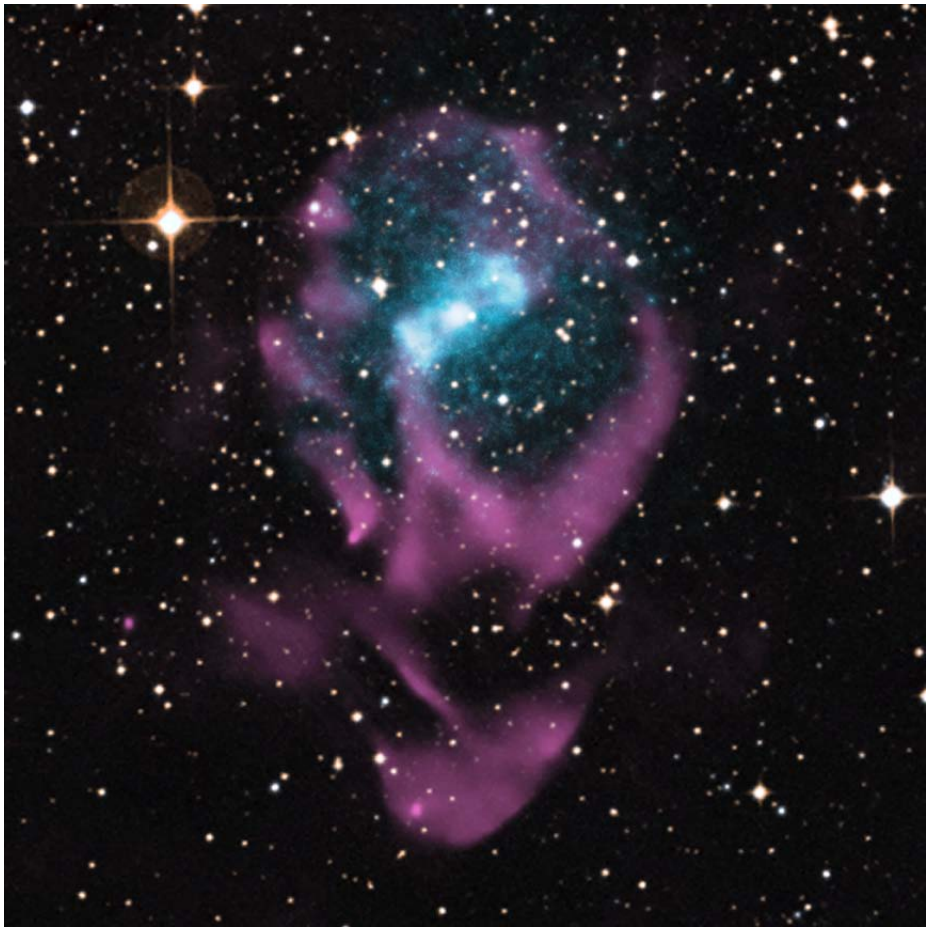
Chandra Science Highlight

Circinus X-1: Chandra detection of supernova remnant reveals youngest known X-ray binary system



A composite image shows the X-rays in blue and radio emission in purple, which have been overlaid on an optical field of view from the Digitized Sky Survey.

- Circinus X-1 is an X-ray binary star system that produces X-rays when gas falls from a normal star onto a neutron star companion.
- Astronomers caught Circinus X-1 in a very faint state, and used Chandra to detect the X-ray glow from a supernova shock wave surrounding Circinus X-1.
- From the size of the shock wave and its speed, the supernova remnant was determined to be less than 4,600 years old.
- Since the supernova was triggered by the formation of the neutron star, neutron star in Circinus X-1 must less than 4,600 years old, making it the youngest known X-ray binary.

Reference: Heinz, S et al, 2013, ApJ accepted arXiv:1312.0632

Scale: Scale: Image is 10 arcmin across (about 76 light years)

Distance Estimate: About 26,000 light years

Instrument: ACIS

CXC operated for NASA by the Smithsonian Astrophysical Observatory

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