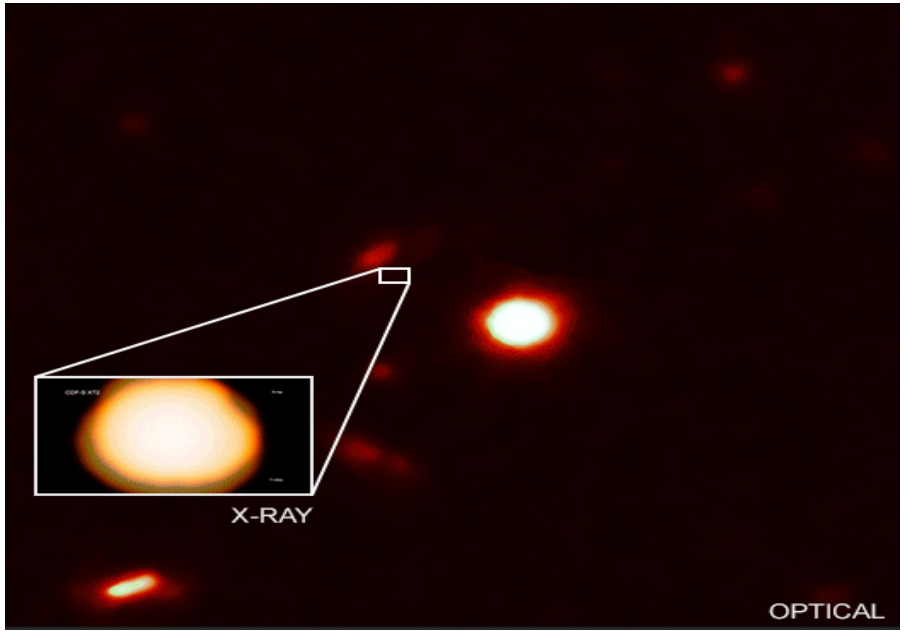
Chandra Science Highlight

Chandra Discovers New Signal for a Neutron Star Collision



- XT2 lies about 10,000 light years from the center of its host galaxy
- XT2 suddenly appeared and glowed as a bright X-ray source for about 30 minutes, then faded away over the course of about 6.5 hours.
- The XT2 X-ray behavior of XT2 suggest that it was a newly formed neutron star spinning around hundreds of times per second and possessing a magnetic field about a quadrillion times that of Earth's.
- The properties of XT2 such as its short duration and location in the outskirts of a small galaxy suggest that the likely origin of XT2 is the merger of two neutron stars.

Caption: The wider field of view shows an optical image from the Hubble Space Telescope of a portion of the Chandra Deep Field – S field. The inset shows a Chandra image focusing only on the source CDF-S XT2. The location of XT2, which was not detected in optical images, is shown by the rectangle, and its host galaxy is the small, oval-shaped object located slightly to the upper left.

Distance estimate: 6.6 billion light years (redshift z=0.0738)

Credits: X-ray: NASA/CXC/Uni. Science & Technology of China/Y. Xue et al.; Optical: NASA/STScI

Instrument: ACIS

Reference: Xue,Y.Q et al, 2019, Nature; arXiv:1904.05368

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