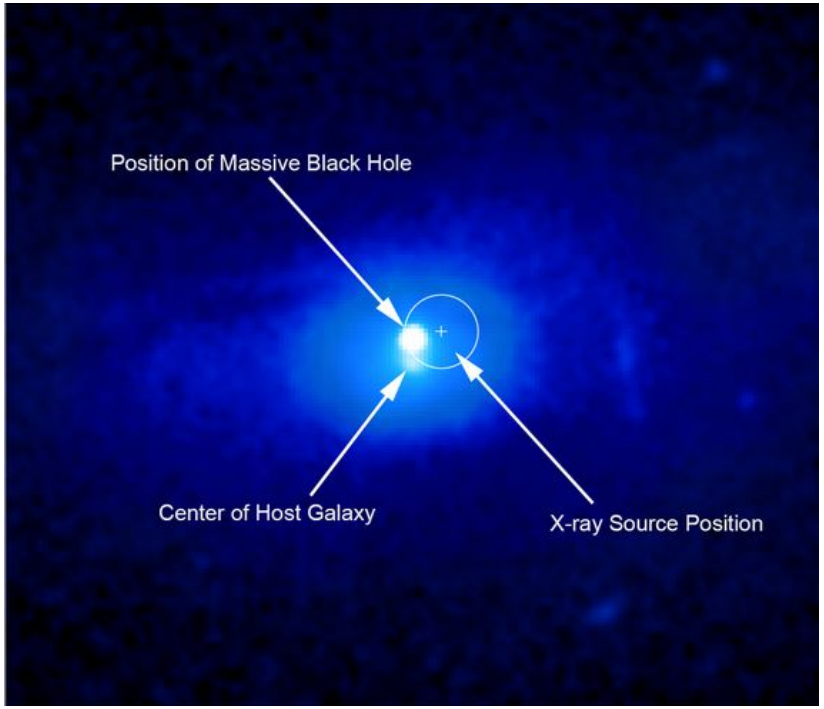
Chandra Science Highlight

CXO J101527.2+625911: A Potential Recoiling Supermassive Black Hole



Hubble image of CXO J101527.2+625911, which shows a source located at the center of the galaxy, and one about 3,000 light years away from the center. The plus symbol and circle represent location of the Chandra X-ray source and its positional uncertainty at 95% confidence level.

- The Chandra source position is consistent with the extra-nuclear source detected by Hubble.
- The extra-nuclear source is moving rapidly (175 km/s) and is a strong X-ray source, (L_x = 2 x 10^{43} erg/s).
- The nucleus of the galaxy is not detected in X-rays.
- A plausible interpretation of the data is that the extra-nuclear source is a recoiling supermassive black hole ejected from the center of the galaxy when two galaxies merged.

Scale: Image is 10 arc sec across (about 163,000 light years).

Distance Estimate: 3.0 billion light years (redshift z = 0.3504)

Credit: X-ray: NASA/CXC/NRAO/D.-C.Kim; Optical: NASA/STScI
Instrument: ACIS
Reference: : Kim, D.-C. et al., 2017, ApJ 840,71
arXiv: 1704.05549v1

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