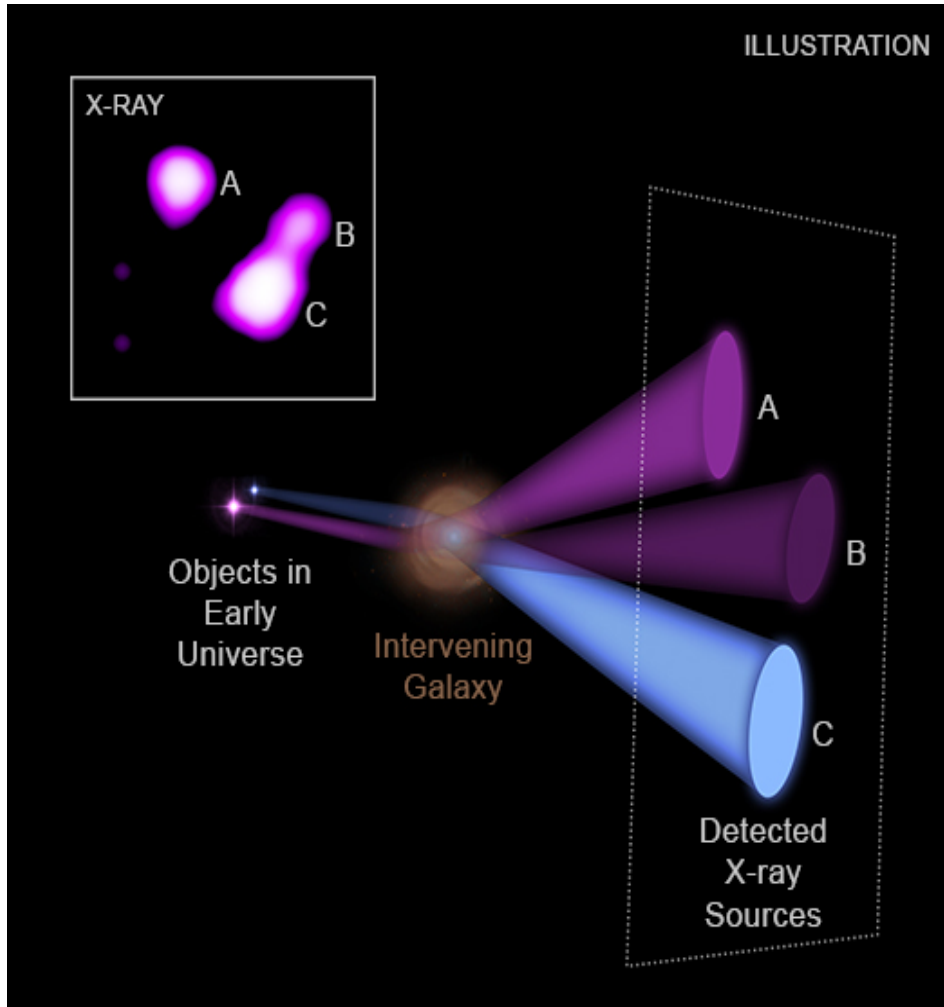




Chandra Science Highlight

"X-ray Magnifying Glass" Enhances View of Distant Black Holes



- Astronomers have used an "X-ray magnifying glass" to study a black hole system in the early Universe.
- The warping, amplification and magnification of light by an intervening galaxy allowed the detection of two distant X-ray-emitting objects.
- The objects are either two growing supermassive black holes, or one such black hole and a jet.
- This result helps us understand the growth of black holes in the early Universe and the possible existence of systems with multiple black holes.

Distance estimate: About 11.8 million light-years.

Credits: Illustration: NASA/CXC/M. Weiss; X-ray Image (inset): NASA/CXC/SAO/D. Schwartz et al.

Instrument: ACIS

Reference: Schwartz, D., Spingola, C., and Barnacka, A., 2021, ApJ, 917, 26; [arXiv:2103:08537](https://arxiv.org/abs/2103.08537)

Caption: An artist's illustration in the main panel of the figure shows how the X-ray light from two objects in the early universe – shown on the left – has been affected by the gravity of an intervening galaxy. X-ray light from one of the objects (purple) has been warped to produce two sources detected in the Chandra image (dashed square on the right). The light from the fainter object (blue) has been amplified by the galaxy to be as much as 300 times brighter than it would have been without the lensing. The Chandra image showing the three detected sources is in the inset. Because of the magnification of the light by the galaxy the separation of the sources is larger than it would have been without the lensing

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