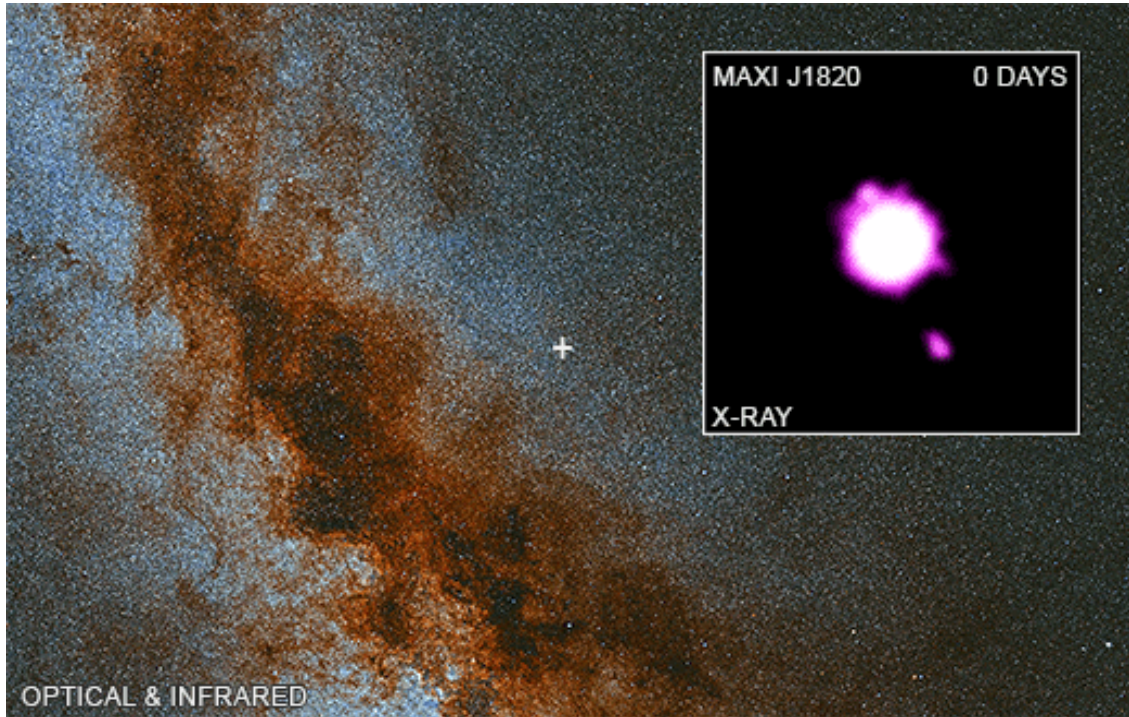




Chandra Science Highlight

Relativistic X-ray jets from the black hole X-ray binary MAXI J1820+070



- Astronomers have observed a pair of jets blasting away from a black hole at 80% of the speed of light.
- The stellar-mass black hole (about 8 times the mass of the Sun) is pulling material away from a closely orbiting companion star.
- Some of this material does not fall into the black hole and is instead redirected outward as jets in opposite directions.
- Four observations from NASA's Chandra X-ray Observatory taken in 2018 and 2019 allowed astronomers to detect the jets as they slam into surrounding material and start to slow down.

Distance estimate: About 10,000 light years.

Scale: Optical/infrared image is about 44.5 degrees (8,000 light years) across. X-ray inset image is about 30 arcsec (1.5 light years) across.

Caption: The main panel of the graphic is a large optical and infrared image of the Milky Way galaxy from Pan-STARRS. A cross marks the location of MAXI J1820+070, an X-ray binary containing a black hole. The inset shows the first of four Chandra images of MAXI J1820+070 centered on the black hole. The data reveal that two jets pointed in opposite directions, launched just outside the event horizon, are blasting away from the black hole at about 80% of the speed of light.

Credit: X-ray; NASA/CXO/Université de Paris/M Espinasse et al.; Optical/IR:PanSTARRS

Instrument: ACIS

Reference: Espinasse, M., et al. 2020, ApJ

Letters. [arXiv:2004.06416](https://arxiv.org/abs/2004.06416)

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