

Chandra Science Highlight

Stellar Flare – Coronal Mass Ejection Event Detected by Chandra



Caption: Artist's illustration of a coronal mass ejection from a star

Distance estimate: 450 light years

- Chandra archival data was used to make the first unambiguous detection of a coronal mass ejection event from a star other than the Sun.
- Using the High Energy Transmission Grating Spectrometer (HETGS) aboard Chandra, Doppler shifts in S XVI, S XIV and Mg XI lines revealed upward and downward motions of 100-400 km s⁻¹ during a stellar flare.
- A blueshifted OVIII line revealed an upward motion at 90 km s⁻¹, which implies a coronal mass ejection associated with the flare. The calculated mass ejection is 10,000 times greater than the most massive coronal mass ejection observed from the Sun.

Credits: NASA/CXC/INAF Argiroffi, C. et al. Illustration: NASA/GSFC/S. Wiessinger

Instrument: HETGS/ACIS

Reference: Argiroffi, C. et al, 2019, Nature Astronomy,; [arXiv: 1905.11325](https://arxiv.org/abs/1905.11325).

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