



Chandra X-Ray
Observatory Center

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V471 Tauri: A binary star system 150 light years from Earth in the constellation Taurus.

Credit: NASA/CXC/SAO/J. Drake et al.

The illustration shows Chandra's X-ray spectra of V471 (middle) and two comparison stars: a red giant star (top), and a Sun-like star (bottom). The peak in the spectrum due to carbon ions is much smaller in the red giant star than in the Sun-like star, because nuclear reactions in the giant star have depleted its carbon content. In V471 Tauri a white dwarf star (the primary) is in a close orbit - one thirtieth of the distance between Mercury and the Sun - with a normal Sun-like star (the secondary). The carbon peak in the V471 spectrum is intermediate between the two comparison stars. This is the best evidence yet that the primary star, which was once a red giant, engulfed the secondary star sometime in the past and contaminated it with carbon-poor material.

Chandra Low-Energy Transmission Grating Spectrometer Spectra

CXC operated for NASA by the Smithsonian Astrophysical Observatory