



**Chandra X-Ray
Observatory Center**

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44i Bootis: A multiple star system about 42 light years from Earth in the constellation Boötes.

Credit: X-ray: NASA/SAO/CXC/N.Brickhouse et al., Illustration: CXC/M.Weiss

The blue spheres are an artist's conception of two closely orbiting stars known as 44i Boötis. The stars pass in front of one another every three hours. The red arrow in the illustration indicates the direction that the stars are orbiting. Chandra's data on the Neon X-ray emission from the stars is depicted on the plots to the right. The 4 panels show the shift in the wavelength at which the emission peaks as the stars orbit one another. By using the Doppler effect—the same process that causes the wavelength of an ambulance's siren to shift up and down as the ambulance approaches and recedes—astronomers were able to pinpoint the location of the source of most of the X-rays. To their surprise, they found that the stars produce most of the X-rays from near their poles. In contrast, the active X-ray regions on the Sun tend to be near the equator.

Chandra X-ray Observatory HETG/ACIS Image