New Insights into the X-ray Sources in Hot Star Winds

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Abstract

The HETG X-ray emission-line spectra of hot stars have revealed a suprising diversity of characteristics. Although all the early-type stars we have observed have shown extremely broad emission lines ($\approx$ 500-1000 km s^{-1} HWHM), only ζ Puppis has shown the line-centroid blue-shifting expected from wind optical depth effects. Using helium-like ion line diagnostics, it appears that the hardest X-rays in both ζ Pup and ζ Ori originate close to their photospheres, a region where it would be difficult to form strong shocks. The hard X-ray emission from δ Ori originates from a distance roughly corresponding to its close companion star, so binary wind effects are discussed as a possible additional X-ray source.

CATEGORY: NORMAL STARS AND WHITE DWARFS