Stars Grouped with η Car

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Abstract

The region around the η Car nebula contains three O associations, which provide examples of very rare objects, including a Wolf-Rayet star and several massive O3 stars. One of the early Chandra ACIS-I images was centered on η Car, and included the region of Trumpler 16 (of which η Car is a member), and also some of Trumpler 14. The Chandra image confirms the well known result that O and very early B stars are X-ray sources (Seward and Chlebowski, 1982, ApJ, 256, 530) with $L_X \simeq 10^{-7}$ L_{bol}. In addition, the new Chandra image reveals a population of X-ray sources without O or B spectral type counterparts, which are presumably pre-main sequence stars. Analysis is assisted by reasonable uniformity of the optical extinction across the association. However, X-ray results permit us to confirm extra absorption of soft X-ray flux in two stars which have unusually high optical extinction, and lie near the edge of dust lanes. The energy sensitivity of the ACIS-CCD provides low resolution spectra. We have used these to compare spectra of the stars with different photospheric temperatures, as well as varying stellar wind strengths.

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