



The fingerprint of a star: η Boo

η Boo^{ts} (8 Boo = HD 121370), named Muphrid, is a G0 subgiant. It is among the few stars with a metallicity significantly above solar. Eta Boo^{ts} is a suspected spectroscopic binary with a reported period of 494 days, but the companion was not confirmed through speckle interferometry. This measurement does not rule out a low mass stellar companion of spectral class M7. As a subgiant it has begun the process of evolving from a main sequence star into a red giant. It has about 1.7 times the mass of the Sun and 2.7 times the Sun's radius. The estimated age of this star is about 2.7 billion years. Based on its spectra, it has a significant excess of elements heavier than helium. In fact the ratio of iron to hydrogen is considered close to the upper limit for dwarf stars in

the galactic disk. This poster shows the optical spectrum of η Boo obtained with the Potsdam Echelle Polarimetric and Spectroscopic Instrument (PEPSI) of the Large Binocular Telescope (LBT). It plots the normalized intensity as a function of wavelength λ in Angströms (1Å=0.1nm) from the top left corner to the bottom right corner. The PEPSI spectrum covers the wavelengths between 3820 Å (top left) and 9130 Å (bottom right) with an average spectral resolution of $R=\lambda/\Delta\lambda\approx 220,000$ or approximately 1.4 km/s. Its average dispersion is 0.012 Å/pixel. Integration time with the LBT was 1min in the blue and 30 sec in the red and consists of between 2-10 exposures in the six cross dispersers. The signal-to-noise ratio (S/N) of the spectrum peaks at 2180:1 at 7000 Å and has a low of 610:1 near

the blue cutoff. The exposure was obtained on April 9, 2015. A subset of spectral absorption lines is identified in the graphics and marked with dashes beneath the spectrum. The annotation indicates the chemical element (e.g., Fe for iron), the ionization state (I for a neutral line, II for an ionized line), and the wavelength in Angström. The original spectrum has been published in *Astronomy & Astrophysics* (Strassmeier, K. G., Ilyin, I., & Weber, M. 2018, A&A, **612**, A45; see <https://pepsi.aip.de/>).

