



The fingerprint of a star: δ CrB

δ Corona Borealis (10 CrB = HD 141714) is a G3.5 class III giant. Because it is a spectroscopic binary and exhibits mildly strong Ca II H&K emission lines it was classified as an RS CVn binary. It is around 170 light-years distant and around 2.4 times as massive as the Sun and has swollen to 7.4 times its radius. It has a surface temperature of 5180 K. Its luminosity and spectrum suggest it has just crossed the Hertzsprung gap, having finished burning core hydrogen and just begun burning hydrogen in its shell. It is slightly variable, over a period of 59 days, thought to be because of its starspots. It is a source of X-rays due to its hot corona. This poster shows the optical spectrum of

δ CrB 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 ($1\text{\AA}=0.1\text{nm}$) 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 $R=\lambda/\Delta\lambda=220,000$ or approximately 1.4 km/s. Its average dispersion is 0.012 Å/pixel. Integration time with the LBT was 5 min and consists of two exposures in all six cross dispersers. The signal-to-noise ratio (S/N) of the spectrum peaks at 1050:1 at 8250 Å and has a low of

210:1 near the blue cutoff. The exposure was obtained on March 3, 2017. 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/>).

