



The fingerprint of a star: 18 Sco

18 Scorpii = HD 146233 is a solar-like G2 dwarf star and had been titled a solar twin. Though 18 Scorpii is only slightly more metal-rich overall than the Sun, its lithium abundance is about three times as high. It has a temporal photometric behavior very similar to the Sun. Its brightness variation over its entire activity cycle is 0.09%, about the same as the Sun's brightness variations during recent solar cycles. Using the technique of Zeeman-Doppler imaging, a surface magnetic field was detected, showing that its intensity and geometry are very similar to the large-scale solar magnetic field. The estimated period for the activity cycle of 18 Scorpii is about seven years, which is significantly shorter than the Sun's, and its overall chromospheric activity level is noticeably higher. This

poster shows the optical spectrum of 18 Sco 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 7 min and consists of 3-7 exposures in all six cross dispersers. The signal-to-noise ratio (S/N) of the spectrum peaks at 1300:1 at 7000 Å and has a low of 240:1 near the blue cutoff. The exposure was ob-

tained on May 23 and 24, 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/>).

