



The fingerprint of a star: γ Sge

γ Sagittae (12 Sge = HD 189319) is a cool M0 III giant. Based upon an annual parallax shift of 12.62 mas as seen from Earth, it is located about 258 light years from the Sun. It is around 2.35 billion years old with an estimated 1.37 times the mass of the Sun and roughly 55 times the Sun's radius. The star is radiating about 562 times the Sun's luminosity from its enlarged photosphere at an effective temperature of 3,860 K. It is moving closer to the Sun with a radial velocity of -34 km/s. This poster shows the optical spectrum of γ Sge 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 1 min, and 30 min with the VATT, and consists of 2-17 exposures in all six cross dispersers. The signal-to-noise ratio (S/N) of the spectrum peaks at 2710:1 at 8250 Å and has a low of 240:1 near the blue cutoff. The LBT exposures were obtained on June 3, 2016 and September 25, 2015,

the VATT exposures between May 27 and June 2, 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/>).

