



The fingerprint of a star: Rasalas = μ Leonis

Mu Leo (μ Leo = 24 Leo = HD 85503), also named Rasalas, is an evolved K-type giant classified K2III CN1 Ca1. The notation indicates that, for a star of its type, it has stronger than normal absorption lines of cyanogen and calcium in its spectrum. The star has been dubbed a super-metal-rich star with respect to the Sun. It has around 1.5 times the Sun's mass, but has expanded to around 14 times the Sun's radius. μ Leonis shines with 63 times the luminosity of the Sun from an outer atmosphere that has an effective temperature of \approx 4,400 K. It is around 3.3 billion years old. The system is 124 light-years (38.1 pc) away from the Sun. In 2014, an exoplanet was discovered to be orbiting the star with a period of 358 days and a mass that is at least 2.4 times as massive as Jupiter. This

poster shows the optical spectrum of μ Leo 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 Å = 0.1 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 0.007 Å/pixel. Exposure time with the LBT was 60 sec and between 2-6 consecutive exposures were co-added. S/N ratio is peaking at 2,000:1 at 7500 Å with a low of 260:1 near Ca II H&K. The individual exposures took in total 15 minutes and were 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. Note that the annotation text appears darker the stronger the line. The line identifications and the wavelengths were taken from the Vienna Atomic Line Database. The original spectrum has been published in Astronomy & Astrophysics (Strassmeier, K. G., Ilyin, I., & Weber, M. 2017, A&A). For further details and for spectra of other stars see <https://pepsi.aip.de/>

