

He I $\lambda 10830$ in the S Star HR 1105

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Shcherbakov (1979) first reported that the S star HR 1105 shows a strong and variable He I $\lambda 10830$ line. We confirm this report and present spectra of HR 1105 around 10830 Å taken over approximately 0.3 orbit, from a program to obtain full orbital coverage for this 600-day system. Using Griffin's (1984) orbital solution, we have phased in the data presented by Shcherbakov with our own and found that for two coincidences of phase, the 10830 profiles at different epochs but same orbital phases are identical within the limitations of the data. The earlier observations were taken eight orbits (13 years) before ours.

Maximum strength of the He I feature occurs at conjunction (where the unseen secondary is in front of the primary), when the profile is pure absorption with an equivalent width of 2.2 Å. For the next six months the profile is nearly a classic P Cygni profile. The equivalent width of the emission lobe is larger near quadrature (in May and July) than in February. Estimates of the strength of the absorption lobe are hampered by the presence of strong blends in the photospheric spectrum of the primary, but the total strength of the absorption lobe is roughly constant in the last three spectra.

The repetition of profile with phase suggests that the He I profile is modulated by the orbit, although extended monitoring of this long-period system would be needed to establish this. If this is the case, then HR 1105 could be labelled a marginally interacting binary system.