RADIAL VELOCITY VARIATIONS OF THE SECONDARY STAR IN U GEMINORUM

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We have used a photon-counting array detector at the coudé spectrograph of the Mt. Wilson 2.5-m reflector to follow changes in the near-infrared spectrum of U Geminorum around most of the orbit. A preliminary analysis of two series of exposures shows radial velocity variations in the Na I absorption doublet at λ8183 and λ8195, at the orbital frequency and with the orbital phase appropriate for the M5-type secondary star. A first attempt to detect the K I line at λ7699 was unsuccessful.

A tentative value for the radial velocity semi-amplitude K_2 is 280 km sec^{-1}. This result is consistent with predicted values of K_2 (Smak 1976). The indicated mass for the secondary star, about 0.35 solar masses, requires an effective temperature of about 3400 K if the star is on the main sequence (Veeder 1973). The observed temperature of the secondary star is about 3000 K (Wade 1979). If the star lies on the main sequence mass-radius line, as it appears to do, then U Gem B is underluminous for its mass and overluminous for its temperature.

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