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Orbital Solution of Spectroscopic Binary: HD 10259

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Since 2007, the TUBITAK National Observatory (TUG) has been conducting precise Doppler surveys of G-K giant stars, which have identified several stars with radial velocities between 1 and 10 kms^{-1}. Among these stars is HD 10259, which exhibits a radial velocity variation with an amplitude of about 5 kms^{-1} over a period of 550 days. Using the 1.5m RTT150 telescope at TUG and an iodine (I_2) absorption cell, we obtained precise radial velocity measurements of the star and performed an orbital analysis to derive the system's orbital parameters. Our analysis revealed that HD 10259 is a single-lined spectroscopic binary with a very high eccentricity ($e \sim 0.65$). We also obtained a minimum mass of the component, which is estimated to be $m_2 sini \sim 0.21 M_{\odot}$.

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