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Determination of oscillation frequencies of Delta Scuti star KIC 1162150

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The Delta Scuti stars are intermediate mass stars of spectral types A2-F5. Their luminosity classes vary from III to V. Most of the Delta Scuti stars belong to Population I but some of them show metallicities and space velocities typical to Population II. To date, several thousands of Delta Scutis have been found in our galaxy and these are among the most common types of pulsating stars. The light curve analysis of Kepler long cadence dataset of Delta Scuti star KIC 1162150 is presented. The full data set of KIC 1162150 from quarter 0 (Q0) through quarter 14 (Q14) was obtained from the Kepler Asteroseismic Science Operations Center's (KASOC). In total 65605 magnitudes, spanning a total time of 1209 days, normalized to the median magnitude were used to generate the entire light curve. The pulsation frequencies were determined by applying Lomb-Scargle algorithm and discrete Fourier transformation with whitening process to eliminate the effect of post-frequencies detected. The oscillation frequencies were searched for in the range of 81 μHz to 230 μHz in the step size of 1×10^{-4} μHz. The pulsation frequencies were determined using the frequency spectra of the KIC 1162150. Six pulsation frequencies were detected in this study. The detected fundamental pulsation frequency is 189.9060 μHz, and rest of the frequencies are 199.4351 μHz, 214.0093 μHz, 187.3122 μHz, 176.1775 μHz, and 159.0771 μHz.

Keywords*: Delta Scuti stars; KIC 1162150; pulsation frequency*