

High-precision binary parameters for calibrating stellar evolutionary models.

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Detached eclipsing binary systems are often used to calibrate stellar evolutionary models, but require high precision to constrain free parameters such as convective overshooting and helium abundance. While overshooting can be constrained using asteroseismology, it is not currently possible to detect pulsations in all types of stars. Helium abundance can only be directly measured in hot stars. We present the results of two newly discovered binary systems, with masses determined to better 1% precision. These systems both contain a sub-giant component, which allows the age of the systems to be pinned-down. Together with high-precision stellar parameters, this can help constrain the free parameters, as was shown for the systems AI Phe and LL Aqr. In addition, one system appears to show delta Scuti pulsations, which would allow the internal structure of the pulsating star to be probed.

Primary author: KIRKBY-KENT, Jessica (Keele University)

Co-authors: SERENELLI, Aldo (Institute of Space Science (ICE/CSIC-IEEC)); HELLIER, Coel (Keele University); ANDERSON, David (Keele University); MAXTED, Pierre (Keele University); WEST, Richard (University of Warwick)

Presenter: KIRKBY-KENT, Jessica (Keele University)

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