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[ST15] New Yonsei-Yale Horizontal-Branch Evolutionary Tracks with Helium Enhancements

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New sets of horizontal-branch (HB) evolutionary tracks with the effects of He enhancements are presented. The most up-to-date input physics applied in the latest  $Y^2$  isochrones are adopted, and the effects of  $\alpha$ -enhancements are also fully considered. These HB tracks have been constructed for more realistic evolutionary population syntheses for old stellar populations, for example globular clusters (GCs) and elliptical galaxies. The new HB tracks well reproduce the observed color magnitude diagrams of extreme horizontal-branch in Galactic GCs, such as  $\omega$  Centauri and NGC 2808.

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[ST16] SW Lyncis-Advances and Questions

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Many filtered CCD measures form the basis of six new light curves of the eclipsing system SW Lyn. From these measures and additional eclipse timing observations, a total of 32 new times of minimum light have been calculated. The complex period variability can be sorted into a linear period improvement, a 5.8-year periodic term and a longer cycle. The shorter of these is ascribed to a cool companion of the eclipsing pair but the longer one has no testable interpretation at present. The new light curves are synthesized by a familiar code. The results incorporate a source of "third light" which comes from the photometrically-unresolved, cool companion star that had been identified by the cycling of the period of the eclipsing pair and also had previously been identified spectroscopically. There is a measure of satisfaction with current understanding of the SW Lyn eclipsing system because of consistent syntheses of all historical light curves. This agreeable convergence, however, comes partly at the expense of an unanticipated temperature of the hot star and of a photospheric spot that has no obvious basis in the detached character modeled for the binary. We offer predictions of changes in the stellar parameters should the modeled configuration be wrong. The evolution of the triple system is very difficult to understand.