Tidal and rotational effects in the long–time evolution of hierarchical triple stellar systems

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A new numerical integrator was developed by the author for studying the orbital evolution of hierarchical triple stellar systems. The code includes both equilibrium and dynamical tide approximations. (The later allows rotation with arbitrary rate around arbitrary direction of rotational axes.) First runs show that close triple systems containing distorted stars (e.g. eclipsing variables) could remain stable even in those cases when the mass–point model would predict the dissolution of the system (due to e.g. Kozai resonance). The long–term variation of the orbital elements (e.g. the inclination of the close (eclipsing) binary) and its observational consequences according to the mass–point and distorted models will be also compared. Finally the effect of an inclined rotational axis is also illustrated.