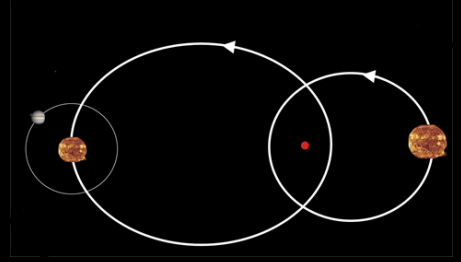
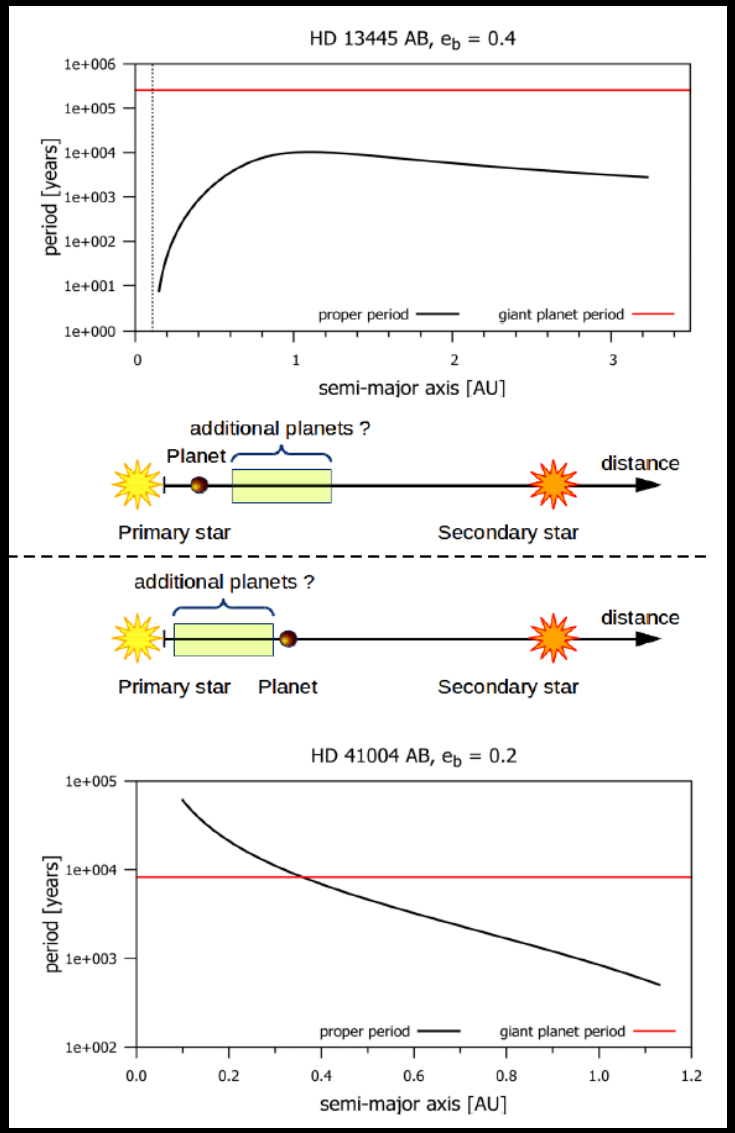
Project Team: E. Pilat-Lohinger (lead), A. Bazso, B. Funk

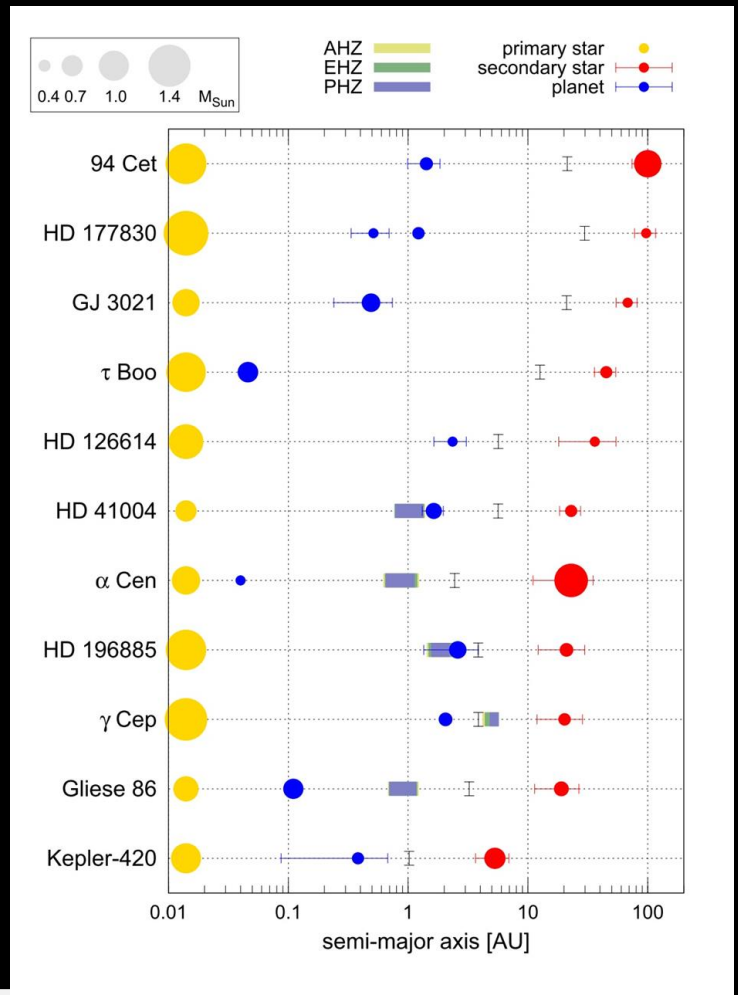
Result – 2: New Method to determine secular perturbations in binary stars





Left panel: New Method: When a giant planet is acting as an external perturber (bottom panel) an apsidal resonance can occur. Around the intersection point of the test planet's proper period (black curve) and the giant planet's proper period (horizontal red line), the eccentricity will increase which leads to chaotic orbits. For internal perturbers (top panel) there is no intersection.

Right panel Application to observed binary systems: We chose 11 binary systems, separated by at most 100 AU, hosting a giant planet. We calculated the stability limits for S-type planets (Pilat-Lohinger & Dvorak 2002 CeMDA), as well as the location of the habitable zones (Eggl et al. 2012 ApJ). We aimed to identify regions that could harbour additional terrestrial planets.



See publications by
Pilat-Lohinger + (2016) & Baszo, Pilat-Lohinger+ (2017)