Habitability of exoplanets in binary and multiple star systems

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Abstract

Star systems consisting of two or more stars are very abundant in our stellar neighbourhood which makes them interesting candidates for the search of life. For single star systems there exist different climatic models (e.g. Kasting et al. 1993 and Kopparapu et al. 2013) to determine the habitable zone, that defines the region around a star where liquid water could exist on the surface of a terrestrial planet.
In binary and multiple star systems the radiation from the stellar companion(s) can influence the size and location of the habitable zone of the system. Especially for binaries with small stellar separation and/or in binaries where the planets orbits the less luminous star, the amount of the stellar flux received by the planet from the secondary star can be significant. For S-Type binaries, where the planet orbits one of the two stars, Eggl et al. 2012 proposed a model that includes the dynamical influence of the secondary star to the climatic model. In this poster calculations for the habitable zone around S-Type binaries - using data from the catalogue of exoplanets in binary star systems - will be presented.

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