
Robustly searching for Earth-like biosignatures

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Abstract

How common are exoplanets with Earth-like biosignatures (i.e. Earths and super-Earths in their HZ showing biosignatures in their spectra)? We present a strategy to robustly answer this question. Using our existing knowledge of the frequency of Earths and super-Earths and a census of the stars in the solar neighbourhood we construct a sample of ~ 100 targets which we quantify in terms of contrast, angular separation and apparent magnitude. We then calculate the technical requirements for a dedicated space telescope to find these targets and obtain their spectra with a mission timescale of ~ 5 years. Finally, a novel design concept which can be launched on an Ariane V will be presented.

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