

The Characteristics of TPF Target Stars

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As a short duration exploratory mission, Terrestrial Planet Finder faces the fascinating and controversial problem of target selection. We have no a priori evidence for which stars have terrestrial planets, and yet at \$6 million per star, we want to maximize scientific return by choosing targets wisely. Beyond the basic observability constraints on target brightness, light from companions or background objects, and angular size of the habitable zone, there are other factors that could influence the detectability of terrestrial planets around nearby stars, such as stellar age and rotation inclination. Beyond detectability, there are other factors that could affect target desirability, such as metallicity, the presence of known giant planets, and again, stellar age. But how picky can we be before we have eliminated all observable targets, and to what extent does pickiness limit the breadth of knowledge we stand to gain during the TPF survey? In this talk I will give a brief tour of the stars within 30 parsecs and discuss the effects of different approaches to target selection.

