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A Quantitative Criterion for Defining Planets

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Margot, Jean-Luc

A simple metric can be used to determine whether a planet or exoplanet can clear its orbital zone during a characteristic time scale, such as the lifetime of the host star on the main sequence. This criterion requires only estimates of star mass, planet mass, and orbital period, making it possible to immediately classify 99% of all known exoplanets. All eight planets and all classifiable exoplanets satisfy the criterion. This metric may be useful in generalizing and simplifying the definition of a planet.

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