Contribution ID: **28** Type: **Contributed talk**

Implications of planet formation for the origin, mass, and number of free-floating planets

Monday, December 15, 2025 3:10 PM (20 minutes)

The discovery of free-floating planets (FFPs) firmly confirms the fact that during the formation of a planetary system, fully-formed and still-forming planets are scattered out of the system. As planet formation is an inefficient process, meaning that the large majority of the material in a protoplanetary disk is scattered out and does not contribute to the growth of planetary bodies, question remains on the extent to which different modes of planet formation (e.g., gas-giant formation vs the formation of rocky planets) and different formation environments (e.g., single stars or binaries) contribute to the origin, mass, and population of FFPs. In this talk, I will present an analysis of the efficiency of planet formation in different systems and use the results to determine the degree of plausibility for different settings and environments to be potential sources of FFPs, and contribute to the masses and sizes of these objects.

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Session Classification: Modeling

Track Classification: In-person