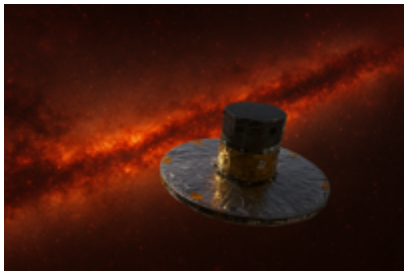

Contribution ID: **52** Type: **not specified**

Modelling the MW exoplanet population

Friday 30 January 2026 10:30 (20 minutes)

The number of detected exoplanets increased significantly in the last decade, finally allowing us to study the exoplanet population from a Galactic point of view. But the detected population is not completely representative of the entire exoplanet population, due to observational biases.
Aiming to simulate a realistic Galactic exoplanet population, we combine planetary formation models and our best knowledge of stellar and exoplanet statistics. We present the process we developed to generate a synthetic exoplanet population, from any given stellar population, considering the relation between exoplanet occurrence rates and host-star properties.
In order to test our generated exoplanet population, we simulated exoplanets in the Kepler field of view, reproducing the selection function of Kepler's exoplanet census. Comparing our simulated "detectable"planets and the exoplanets detected by Kepler, we identified the model parameters to refine to obtain an even more realistic simulation (e.g. the absence of the observed radius gap).
We also generate exoplanet populations in different regions of the simulated Galaxy. Our results suggest that terrestrial planets, even if they are largely underrepresented in current detections, are extremely abundant in all regions of the Galaxy.
We apply the same exoplanet creation process to the future PLATO long-duration phase fields to estimate the number of detectable planets and compare our estimate with existing studies, and will extend it to other future missions in the future, like Gaia NIR.

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