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The transition between super-Earths and sub-Neptunes: Interior and atmosphere modelling of the low-mass planet population

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Low-mass exoplanets are showing a diversity in their densities and irradiation conditions, ranging from highly irradiated planets to temperate worlds. To estimate their composition, we have developed an interior structure model that includes self-consistently an atmosphere in radiative-convective equilibrium for water and CO₂ envelopes. We use the model within a Bayesian adaptive Markov Chain Monte Carlo (MCMC) to estimate the uncertainties of the core and water mass fraction for a sample of multiplanetary systems, which gives us clues about their possible formation site in the protoplanetary disk and their formation mechanisms, as well as assess their observability with JWST.

Primary author: ACUNA AGUIRRE, Lorena (Max Planck Institute for Astronomy)Presenter: ACUNA AGUIRRE, Lorena (Max Planck Institute for Astronomy)Session Classification: Contributed Talks (part 3)