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Title: Theory of planet formation and comparison with Kepler data
Type: Invited Talk
Session: Planet Formation and Migration Theories
Abstract: In this talk an overview of the theory of planet formation and migration will be given. Mainly based on the core accretion paradigm, the basic theoretical concepts of the accretion of solids and gas, and of disk-driven orbital migration will be presented. In the second part of the talk, theoretical predictions based on these concepts and statistical observational constraints derived in particular from the Kepler data will be compared, like the planetary radius distribution, the mass-radius relationship, or the impact of metallicity. Finally, a number of recent developments will be addressed, including the question concerning in situ formation versus migration or the impact of envelope evaporation on close-in low-mass planets and how this constrains migration models.

Co-Authors: K.-M. Dittkrist, P. Molliere, H. Klahr, T. Henning, Y. Alibert, W. Benz.