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Dynamical evolution and instability of planetary systems

KATHERINE DECK, Caltech

The study of the long-term dynamics of the Solar System has a history which stretches back to Newton and which includes erroneous proofs of the stability of the Solar System as well as the discovery of deterministic chaos. In recent years, this classic problem has been revitalized by the discovery of exoplanet systems. In this talk, I will explain how orbital instability arises, what the possible outcomes are, and review evidence that suggests that some observed exoplanetary systems have undergone past episodes of instability.