UNIVERSITÄT DUISBURG ESSEN

PHYSIK

Physikalisches Kolloquium

Mittwoch, 24.01.2024
13:00 Uhr
MC 122 und Zoom

https://uni-due.zoom-x.de/j/64228670246?pwd=RjVQeFNIUkRKRkpiNVpKYXhJaFNLdz09

The Emerging Theory of Planet Formation

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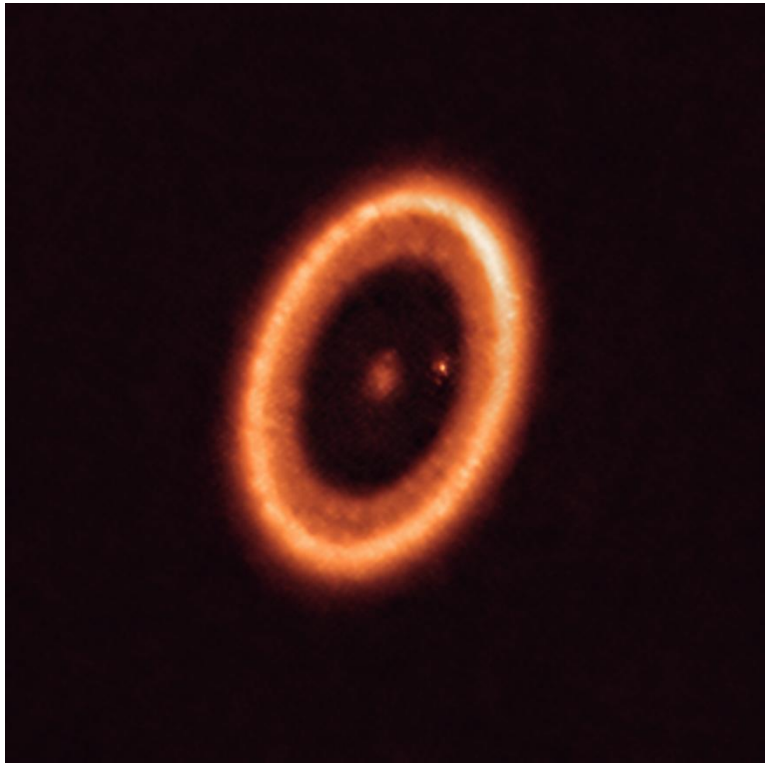

The classical theory of planet formation was conceived when our knowledge about planets was confined to the Solar System alone. In recent years, the numerous discoveries of planetary systems orbiting stars other than the Sun has dramatically transformed this landscape. In this talk, I will discuss the key constraints on planet formation we gathered not only by studying the exoplanet population, but also from the ever-improving observations of circumstellar disks, and from the ultraprecise measurements of the Solar System samples. I will outline the emerging paradigm of planet formation, in which the centimeter-sized dust aggregates, colloquially known as pebbles, take center stage. Focusing on the early stages of planet formation, we will examine the growth process of tiny dust grains into pebbles, as well as the formation of planetesimals — the first gravitationally-bound building blocks that precede today's asteroids and comets. Finally, I will unveil the latest breakthroughs achieved through state-of-the-art numerical models, presenting a persuasive narrative for a massive planet chain formation, resembling the outer planets within our Solar System.

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