



PHYSICS AND ASTRONOMY SEMINAR

Dr. Nienke van der Marel,
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**“Observing planet formation in action in protoplanetary
disks: current and future possibilities”**

Abstract

“Successful exoplanet surveys in the last decade have revealed that planets are ubiquitous throughout the Milky Way, and show a large diversity in mass, location and composition. At the same time, new facilities such as the Atacama Large Millimeter/submillimeter Array (ALMA) and optical/infrared facilities such as Gemini/GPI have provided us with sharper images than ever before of protoplanetary disks around young stars, the birth cradles of planets. The high spatial resolution has revealed unexpected structures in disks, such as rings, gaps, asymmetries and spiral arms, and the enormous jump in sensitivity has provided the tools for both large, statistically relevant surveys and deep, sensitive molecular line studies. These observations have revolutionized our view of planet formation, disk formation and disk evolution, bringing model simulations and observations to the same level of detail. At the same time, these results have led to many new questions about the origin of planets and the physical processes in disks. Upcoming observational facilities, such as the ngVLA and SKA in radio, and TMT and JWST in the infrared, will create new possibilities to explore the planet formation process in the terrestrial regime in the inner few AU of the disk. In this talk, I will discuss the current transformation in our understanding of planet formation and the next steps and challenges in connecting theory with exoplanet demographics and protoplanetary disk observations.”

Tuesday, February 25, 2020

1:30 p.m.

DSB – Room C122