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国台学术报告 NAOC COLLOQUIUM

2019 年 第 20 次 / No. 20 2019

Time: **Monday 2:30 PM, Oct. 14th** Location: **A601, NAOC**

Zooming in on Protoplanetary

Disks with ALMA

Prof. Ewine F. van Dishoeck

Leiden Observatory, The Netherlands



Ewine F. van Dishoeck is professor of molecular astrophysics at Leiden University, the Netherlands. She graduated at Leiden in 1984 and held positions at Harvard, Princeton and Caltech before returning to Leiden in 1990. The work of her group innovatively combines the world of chemistry with that of physics and astronomy to study the molecular trail from star-forming clouds to planet-forming

disks. She has mentored several dozens of students and postdocs and has been heavily involved in planning new observational facilities such as Herschel, ALMA and JWST. She has received many awards, including the 2000 Dutch Spinoza award, the 2015 Albert Einstein World Award of Science, and the 2018 Kavli Prize for Astrophysics. She is a Member of Foreign Associate of several academies, including that of the Netherlands, USA, Germany and Norway. Since 2007, she is the scientific director of the Netherlands Research School for Astronomy (NOVA). As of 2018, Ewine serves as the president of the International Astronomical Union (IAU).

Abstract

Protoplanetary disks are the birthplaces of planets but the spatial resolution at long wavelengths has so far been insufficient to resolve the critical 5-30 AU region. The Atacama Large Millimeter/submillimeter Array (ALMA) now allows us to zoom in to nearby disks and determine the physical and chemical structure associated with planet formation. This talk will provide examples of recent work on observations and models of protoplanetary disks in various stages of evolution. Young disks reveal a rich chemistry. Surveys of large numbers of disks in low- and high-mass star-forming regions provide insight into typical masses and sizes, revealing surprisingly weak gas emission. Special attention will be given to transitional disks, which are a subset of disks with evidence for sharp-rimmed cavities (gaps or holes). They are the best candidate sources for harboring just-formed giant planets. Finally, the last part of the talk will provide a brief update of the IAU and its new strategic plan, and discuss the IAU 100 years centennial activities. See www.iau.org and www.iau-100.org.

All are welcome ; Tea and coffee will be served at 2:15 PM.