

**NRAO/Socorro Colloquium Series**

**Karin Oberg**

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**The Chemistry of Planet Formation: Millimeter spectral line observations of protostars and protoplanetary disks**

**Abstract**

Planets form from dust and gas in disks around young stars. The chemical composition and structures of these disks affect planet formation efficiencies, bulk planet compositions, and the volatile and organic content, and thus prebiotic potential, of nascent planets. Obtaining spatially resolved disk chemical inventories is therefore key to constrain planet formation and habitability. Disk chemical structures can also be used to trace defining disk properties such as the distributions of mass, temperature, ionization, radiation, elemental depletion, and snowlines.

We use spatially and spectrally resolved observations (ALMA and SMA) to explore the organic inventory, isotopic fractionation chemistry, and other chemical structures in disks. Recent highlights include observations of spectacular chemical ring structures that trace temperature- and radiation-regulated organic and isotopologue chemistry, and the detection of the first complex molecule in a disk (CH<sub>3</sub>CN). I will discuss these observations in light of astrochemical studies of the earlier stages of star formation, of the Solar System composition, and of models of planet and planetesimal formation.

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**October 30, 2015**

**11:00 am**

**Array Operations Center Auditorium**

**All NRAO employees are invited to attend via video, available in Charlottesville Auditorium, Green Bank Auditorium, and VLA Video Conference Room.**

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