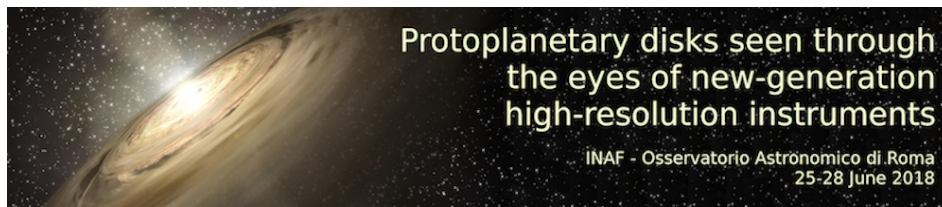


## Protoplanetary disks



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# Towards the molecular complexity in protoplanetary disks

*Wednesday 27 June 2018 11:15 (15 minutes)*

The formation of planets together with that of comets and asteroids occurs within the protoplanetary disk surrounding a Sun-like young star. Consequently, the properties of emerging planets along with their primitive atmospheres may be shaped by the chemical composition of the disk.

Nonetheless, one of the most important questions in Astrochemistry and Astrobiology is whether the molecules found in protoplanetary disks are of direct interstellar medium heritage or whether they have been altered or formed in the protosolar nebulae. At the present time, of the over 180

molecules detected in the interstellar and circumstellar media, approximately twenty molecules have been detected in protoplanetary disks. Thanks to recent progress in instrumentation (i.e. high angular resolution and high

sensitivity) for (sub)millimeter arrays, such as ALMA, new outstanding results have been obtained.

I will review some notable results on the detection of organic molecules, including prebiotic molecules (i.e. molecules that might have made possible the appearance of life on Earth), S-bearing and carbon-chains species towards protoplanetary disks. Finally, based on our recent ALMA observation of formic acid, I will show that complex organic chemistry is taking place in objects where planet formation occurs.

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**Session Classification:** Protoplanetary disks (chair R. Garcia Lopez)