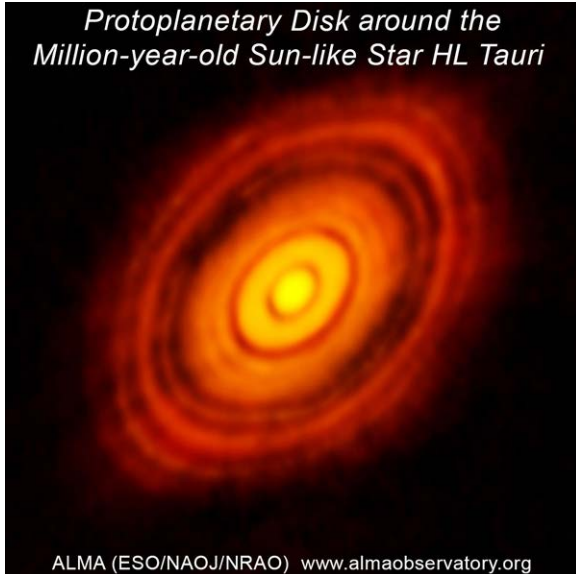


## *Extraordinary View of a Star and its Protoplanetary Disk*

*Protoplanetary Disk around the Million-year-old Sun-like Star HL Tauri*



ALMA (ESO/NAOJ/NRAO) [www.almaobservatory.org](http://www.almaobservatory.org)

Protoplanetary disk image produced by the international astronomy facility known as ALMA — The Atacama Large Millimeter/submillimeter Array. This image was acquired during the ALMA Long Baseline Campaign. (ALMA, C. Brogan, B. Saxton)

*"When we first saw this image we were astounded at the spectacular level of detail.*

*HL Tauri is no more than a million years old, yet already its disc appears to be full of forming planets.*

*This one image alone will revolutionize theories of planet formation."*

— Catherine Vlahakis, ALMA Deputy Program Scientist and Lead Program Scientist for the ALMA Long Baseline Campaign (5 Nov 2014)

Cosmochemists and planetary dynamicists are excited to see the new image provided by the Atacama Large Millimeter/submillimeter Array (ALMA) observatory revealing a true picture matching theoretical models of planet formation in a gaseous debris disk.

Cosmochemical studies of our Solar System's formation include the accretion of the first solids in the **protoplanetary disk** (also called the solar nebula), the chemical environments and processes affecting the materials, as well as the timing of events from protoplanetary disk to now.

Located 450 light-years away from Earth, the protoplanetary disk around star HL Tauri has dark rings where dust and gas have been, or are being, cleared by accreting bodies. What this image shows for the first time is a star, no more than a million years old, in the process of forming proto-planets; a formation timescale faster than predicted previously.

We invite you to use our search engine to find **PSRD** articles about the first solids or protoplanetary disk. More articles about the chemical origins and evolution of the Solar System are available in our [Archive of Origins Articles](#).

The National Radio Astronomy Observatory, an ALMA partner, will host an informational event during the 46th meeting of the Division of Planetary Sciences; see this [NRAO bulletin](#) for more information.

See Reference:

- [Revolutionary ALMA Image Reveals Planetary Genesis](#) (5 November 2014) Press Release from the [Atacama Large Millimeter/submillimeter Array](#).

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