

Re: A Lightweight Disk Around a Lightweight Star May Harbor Earth-like Planet (Forwarded)

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- *From:* jaunty.akhenaten@xxxxxxxxxx
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That's a great find!

How long until most of that disc is swept off by the solar wind there?

Would something like the Asteroid Belt eventually result, but closer in, due to this being a smaller star?

Andrew Yee wrote:

National Astronomical Observatory of Japan
Tokyo, Japan

February 8, 2008

A Lightweight Disk Around a Lightweight Star May Harbor Earth-like Planet

A team of Japanese astronomers resolved a circumstellar disk around the young lightweight star FN Tau. The diminutive star is located in a star-forming region toward the Constellation Taurus at a distance 460 light years from Earth. This research group (Note 1) used the Coronagraphic Imager with Adaptive Optics (CIAO) at the Subaru Telescope to directly image FN Tau and the lightweight disk of planet-forming material surrounding it (Figure 1). This star is merely 100 thousand years old and weighs only one tenth of the Sun.

For background, a circumstellar disk is a mixture of gas and dust around a young newly formed star. The disk accompanies almost most, if not all, sun-like star formation processes, and planets commonly form in this disk. The disk can also be referred to as a protoplanetary disk (referred to simply as a "disk" in the following text) because the solid particles inside the disk collide and stick together and grow into planetesimals, which then crash into each other eventually accumulating enough mass to be stabilized as planets. In response to this scenario, the study of youthful stars and their surrounding structures provide details into the formation of planetary systems, and the search for planets outside our solar system motivates much of modern astronomy. Although hundreds have been found

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through indirect methods, being the first to directly image an extrasolar planet is one of the primary goals of Subaru. The findings at FN Tau show that Subaru is on the right path toward planet discovery.

Observation of protoplanetary disks is not simple because they are small and fainter than their central stars. To date, there are only a few examples that were resolved to show the structures of disks, and only two of them are for Sun-like single stars. Thus far, the Subaru Telescope has pointed toward more massive disks around s