Dusty Planetary Disks Around Two Nearby Stars Resemble Our Kuiper Belt

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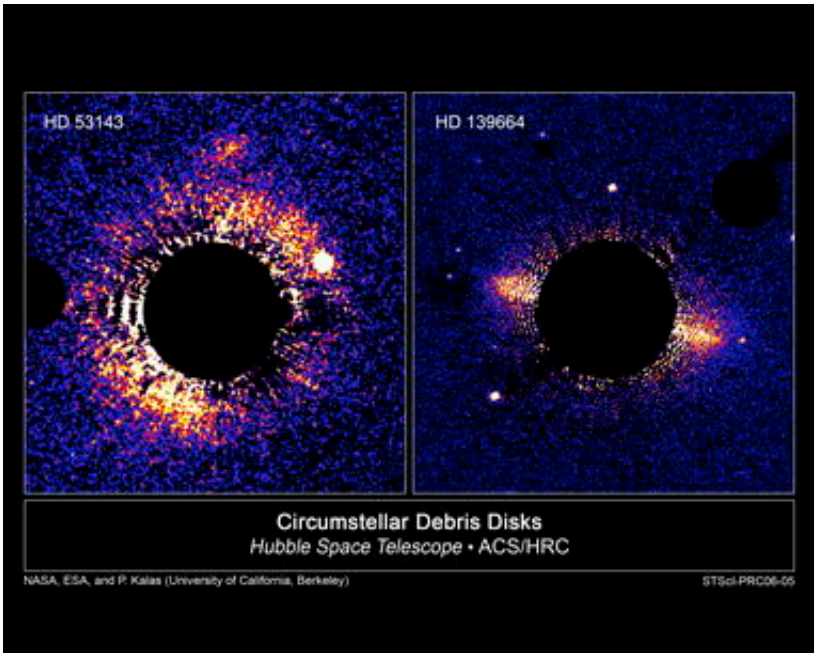

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The wide disk on the left, which is inclined obliquely to the line-of-sight, surrounds HD 53143, a K star slightly smaller than the Sun but about 1 billion years old. The narrow disk on the right, which is tipped nearly edge-on encircles the star HD 139664, an F star slightly larger than the Sun but only 300 million years old. The sharp outer edges of the narrow belt may be telltale evidence for the existence of an unseen companion object that keeps debris gravitationally corralled, in the same way that shepherding moons trim the edges of debris rings around Saturn and Uranus.

A survey by NASA's Hubble Space Telescope shows that such disks fall into two categories: those with a broad belt, wider than about 50 astronomical units; and narrow ones with a width of between 20 and 30 AU and a sharp outer boundary, seemingly like our own Kuiper Belt. An astronomical unit, or AU, is the average distance between the Earth and Sun, about 93 million miles. Our Kuiper Belt, for example, is thought to be narrow, extending from the orbit of Neptune at 30 AU to about 50 AU.

The false-color images were taken with Hubble's Advanced Camera for

Surveys in September 2004. The black central circle is an image artifact produced by the camera's coronagraph which blocks the glare from the central star to allow the much fainter disks to be seen. A smaller black circle at the edge of each photo is a "coronagraphic finger" also used to block light from a bright object in the field.

Source: Space Telescope Science Institute