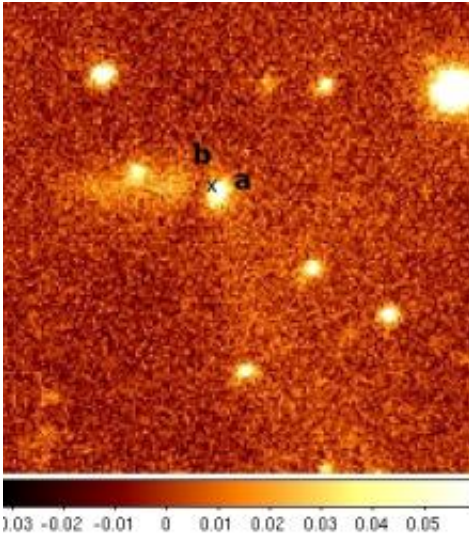


Shadow of a forming star

April 23 2009, by Robert Massey



A false color image of 2M171123 taken with the CTIO 4-m telescope. The label 'a' marks the protostar 2M171123 and the label 'b' represents its probable shadow. At the distance of 424 light years to the system, each side of the image frame corresponds to about 3 million million million (trillion) km.

(PhysOrg.com) -- A team of astronomers from the Instituto Astrofisica Canarias (IAC) have found an interesting shadow cast by a forming star system. Team member Dr Basmah Riaz, an ER fellow for the Marie Curie CONSTELLATION network, will present the results of their work on Thursday 23rd April in a poster at the European Week of Astronomy and Space Science conference at the University of Hertfordshire.

In March 2008 the scientists observed the young star (protostar) system

2M171123 in the B59 molecular cloud, with the Cerro Tololo Inter-American Observatory (CTIO) 4-m telescope in Chile. They found an odd feature in their image - a shadowed dark lane just to the west of the protostar with a thickness of about 54 billion kilometres (360 times the distance from the Earth to the Sun).

Silhouetted images of young star systems and the disks that often surround them (some of which will go on to form planets) are common. But interestingly, in this case the shadow is offset from the protostar, and the offset has been confirmed by comparing the position of this system in the CTIO observations by another at infrared wavelengths from the [NASA Spitzer Space Telescope](#).

Explaining their result, the team suggests a scenario in which the protostar casts its shadow onto a nearby background cloud of material. A scattering cloud that lies offset from the star acts as a screen onto which its shadow is projected. The team has also confirmed that this is not an edge-on disk, but a system viewed at an intermediate inclination.

This is thus an interesting new observation of an offset shadowed lane among young stellar objects. In the future the team plan to obtain images of the system at higher resolution and look out for any variability in the shadowed lane over time.

Provided by Royal Astronomical Society ([news](#) : [web](#))

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