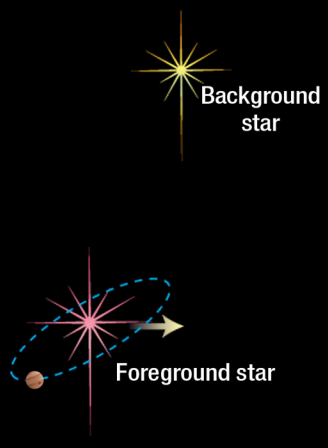
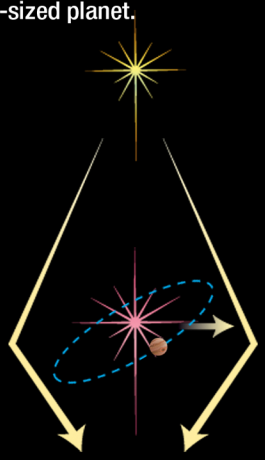
Identification of Exoplanet Host Star OGLE-2005-BLG-169

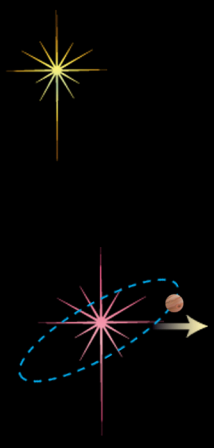
A foreground star and accompanying planet drift in front of a much more distant background star.

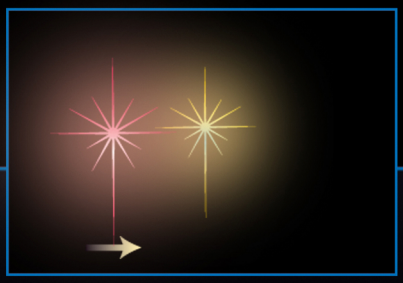


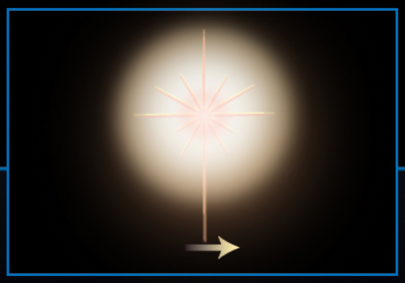
In 2005, the foreground system momentarily magnifies the light of the background star through a phenomenon called gravitational lensing, and so does the accompanying Neptune-sized planet.

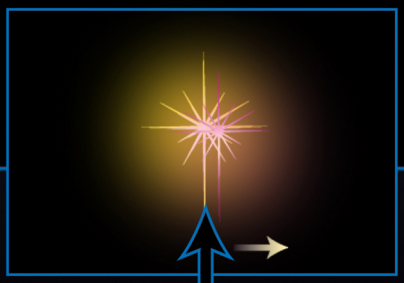


The angular separation between the two stars grows progressively more offset as the foreground star drifts by.

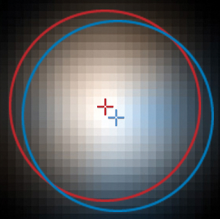








The Hubble Space Telescope observations taken 6.5 years after the lensing event distinguish the slight offset between the two stars. Hubble observed an elongated, blended image of the two stars. This elongated image is red on the side of the planet host star and blue on the side of the host star. These Hubble observations and W. M. Keck Observatory observations taken 8.3 years independently confirm the conclusion that the star positions on the sky are separating at the rate predicted by the planetary light-curve model. The Hubble and Keck observations independently determine the mass and distance to the foreground star and accompanying planet.



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