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Gravitationally Detecting Exoplanets

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The extra solar planet *Kepler-159c* is detected when it passes in front of its parent star; a miniature eclipse. These events are irregular, sometimes occurring sooner or later than expected. That means something must be altering its orbit. What could it be?

Planets do not orbit stars in isolation. The gravitational pull of one planet upon another, while small in comparison to the influence of their parent star, is sufficient to alter the orbit of both planets in measurable ways. As a result, perturbations of one planet's orbit can indicate the existence of another planet.

By analyzing the dynamics of the eclipse irregularities, we found a new planet that was otherwise hidden from view. Dubbed *Kepler-159d*, it was revealed from the effect its gravity upon the eclipsing planet.

Gravity is a ubiquitous force through the universe, and exploiting its properties can lead to new planet discoveries.