Kepler Planet Bonanza – Animations (captions and credits):

Exoplanet Discoveries Through the Years
Credit: NASA/SETI/J Rowe

The histogram shows the number of planet discoveries by year for roughly the past two decades of the exoplanet search. The blue bar shows previous planet discoveries, the red bar shows previous Kepler planet discoveries, the gold bar displays the 715 new planets verified by multiplicity. Multiplicity is a statistical technique that allows for wholesale verification of multiple-planet candidate systems.

Planet System vs. Star System Stability
Credit: NASA/SETI/J Rowe

On the left, an animation of a gravitational simulation of a compact, multiple-planet system is shown. On the right, a gravitational simulation of a hypothetical compact multiple star system configuration is depicted. The planets in the system are shown to orbit in stable circular orbits whereas the star system is unstable. The gravitational pull of each star on one another pulls the system apart.

Kepler-296 Planetary System
Credit: NASA/SETI/J Rowe

The artist's animation shows the newly verified Kepler-296 system with five planets orbiting its host star. The star is half the size and five percent as bright as our sun.

Shown in green is the habitable zone of the Kepler-296 system. The habitable zone is the range of distances from a star where liquid water might persist on the surface of an orbiting planet. The outer most planet, Kepler-296f, is shown in blue and orbits within the habitable zone. Kepler-296f is twice the size of Earth and has an orbital period of 30 days.

The animation begins by viewing the system top-down. As the animation proceeds, it zooms in on the central star and the viewing angle changes to see the planetary orbits edge-on to allow the observation of the planets transiting the host star.