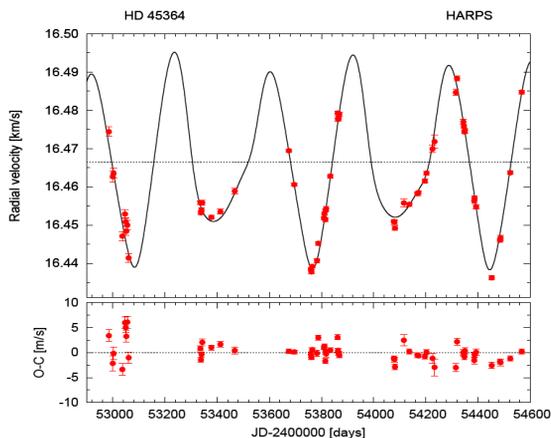




HIGHLIGHTS: this week in A&A

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In section 10. Planets and planetary systems

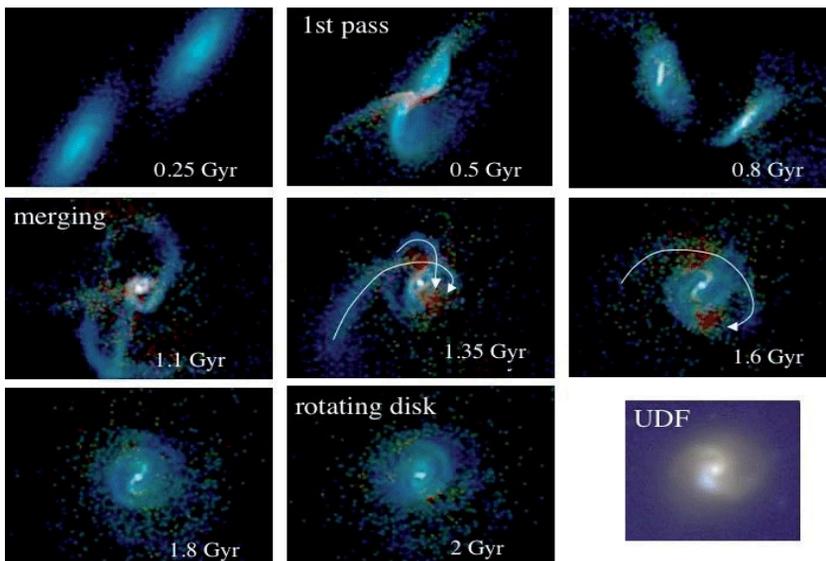
“The HARPS search for southern extra-solar planets. XVI. HD45364, a pair of planets in a 3:2 mean motion resonance”, by A.C.M. Correia et al., *A&A* 496, p. 521

Using the HARPS spectrograph, Correia et al. discovered a system of two exoplanets locked in the 3:2 resonance. This follows the discovery of planetary systems in the 2:1, 3:1, and 5:1 resonances, but it is the first time that one has been found in the 3:2, i.e. in a situation similar to Neptune and Pluto in our Solar System (Neptune makes 3 revolutions around the Sun when Pluto makes only 2).

In section 4. Extragalactic astronomy

“A forming, dust-enshrouded disk at $z=0.43$: the first example of a late-type disk rebuilt after a major merger?”, by F. Hammer et al., *A&A* 496, p. 381

The way in which the zoo of galaxies that we see around us came into being is becoming clearer and clearer as deep, high-resolution observations from space and ground-based telescopes are combined with increasingly sophisticated modeling.



The emerging cosmological scenario is one in which galaxies are built from a highly dynamical coagulation process (called merging) of smaller ones, and the details of this process affect the resulting galaxy morphology. Even though it is significant, merging has had relatively little definitive experimental evidence so far. This paper comes as a textbook example of a system in which we can see merging in action. Through beautiful Hubble Space Telescope and ESO Very Large Telescope data, the authors have been able to convincingly show that the target galaxy (located at $z=0.44$) is the result of a merging of two equal mass progenitors. Even more interesting, and somewhat contrary to theoretical expectations, the galactic disk survived (or it has been re-built) after the potentially disruptive collisional event. A press release based on these results has been issued by ESO and is available [here](#).

In section 10. Planets and planetary systems

“The HARPS search for southern extra-solar planets. XVII. Super-Earth and Neptune-mass planets in 2-planet systems HD47186 and HD181433”, by F. Bouchy et al., *A&A* 496, p. 527

Bouchy et al. find two new systems with multiple planets orbiting solar-type stars. The two systems have the particularity of possessing both low-mass planets (minimum masses of 7.5 and 22 times the mass of the Earth) and giant planets, including both planets on short and long orbital periods (from 4 days to 6 years). The discovery of these systems is crucial for understanding how planetary systems are assembled.