Astronomy & Astrophysics

HIGHLIGHTS: this week in A&A

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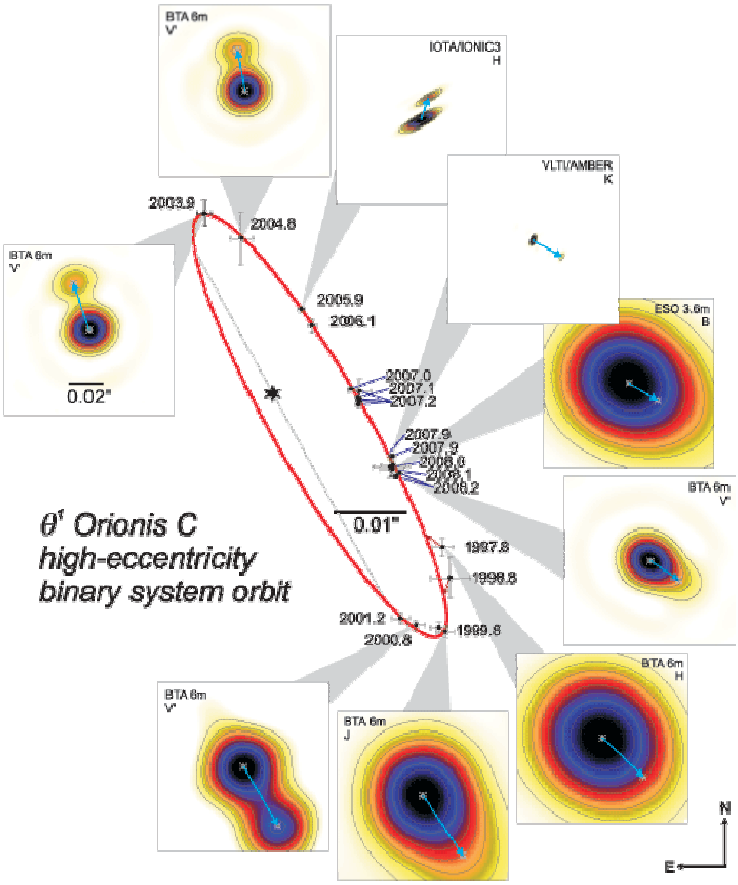

In section 7. Stellar structure and evolution

"Tracing the young massive high-eccentricity binary system Theta 1 Orionis C through periastron passage", by S. Kraus, G. Weigelt et al., A&A 497, p. 195

Theta 1 Orionis C, the brightest and most massive star in the Orion Trapezium cluster, happens to be a binary with a decade-long orbital period, which makes it an ideal laboratory to determine the fundamental parameters of young hot stars. Kraus et al. used the VLTI/AMBER near-infrared (H- and K-band) long-baseline interferometer to observe the binary during its tightest orbital phases. They combined those measurements with new and literature speckle observations, as well as with radial velocity measurements, to determine the 3D orbit of the system. The resulting mass determination still has sizable errors, but additional measurements over the next few years will fulfill the system's promise as a benchmark for models of massive young stars.

You can access the press release for this paper here: http://www.aanda.org/content/view/375/42/lang,en/

In section 1. Letters to the Editor. Sub-section 7. Stellar structure and evolution

"Pre-nova X-ray observations of V2491 Cygni (Nova Cyg 2008b)", by A. Ibarra et al., A&A 497, p. L5

The paper reports the pre-outburst X-ray detection of the extremely fast classical nova V2491 Cyg, for which the outburst was optically discovered in Apr. 2008, with ROSAT (during 1993), XMM/Newton (during Nov. 2006), and Swift/XRT from July 2007 and Jan. 2008, only the second classical nova to be observed before eruption. The other is V2487 Oph. The ROSAT spectrum peaks at around 1keV, while the July 2007 spectra show a supersoft source detected to below 0.5 keV, the last observation in the months leading to the outburst was a weak, hard spectrum. The spectra are similar to those seen in the post-outburst supersoft stage of classical novae but are fainter with spectral changes detected over a timescale of less than a week. The derived mass accretion rate implies a recurrence time of > 100 years, and the absence of short period pulsations argues against a magnetic white dwarf. The source is substantially more luminous than the classical recurrent RS Oph but comparable with the post-outburst X-ray emission from V2487 Oph.