Astronomy & Astrophysics

HIGHLIGHTS: this week in A&A

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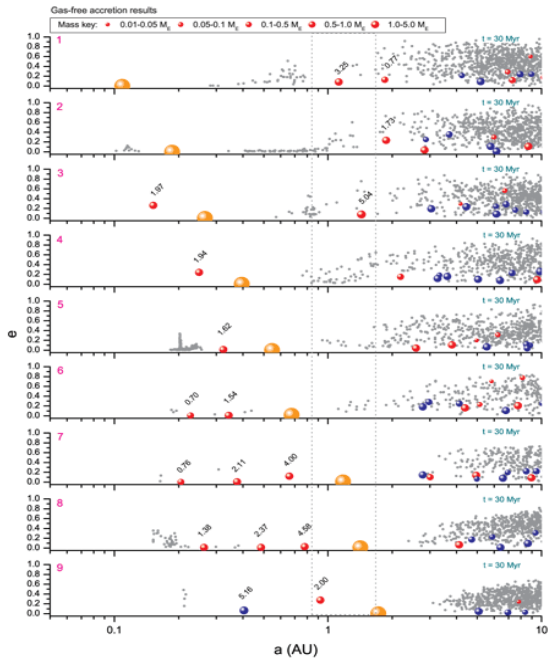

In section 10. Planets and planetary systems

"Terrestrial planet formation in low-eccentricity warm-Jupiter systems", by M.J. Fogg and R.P. Nelson, A&A 498, p. 575

Fogg and Nelson show that terrestrial planets may even form in systems that contain Jupiter-mass planets close to their star. To do so they have combined N-body and hydrodynamical calculations of a system of protoplanet and circumstellar gaseous disks.

In section 1. Letters

"Detection of $^{15}NH_2D$ in dense cores : a new tool for measuring the $^{14}N/^{15}N$ ratio in the cold ISM", by M. Gerin, N. Marcelino, N. Biver, et al., A&A 498, p. L9

Enhancement of ^{15}N has been found in comets and meteorites, and it would be very interesting to obtain accurate measurements of the $^{14}N/^{15}N$ ratio in prestellar cores. Besides being a considerable technical feat, detection of $^{15}NH_2D$ announced in the article by Gerin et al. in this issue, suggests that such measurements are feasible and indeed the $^{14}N/^{15}N$ values they derive (albeit presently with large uncertainty) are consistent with estimates in meteorites and in Jupiter, and this may be significant.

"Formation of gaseous arms in barred galaxies with dynamically important magnetic field: 3D MHD simulations", by B. Kulesza-Żydzik et al., A&A 498, p. L21

The magnetic field intensity and polarization maps in barred galaxies have been an unsolved puzzle for a long time. These 3D MHD simulations succeed in reproducing the main observed features: the magnetic field pattern shifts from arms to inter-arms, creating depolarized valleys in the bar region.

"Universality of young cluster sequences", by S. Pfalzner, A&A 498, p. L37

The relationship between star formation in "starbursts" and star formation in nearby clusters in the Galactic spiral arms is of considerable interest both in its own right and because of the light it may shed on star formation at high z. The Letter by Pfalzner highlighted in this issue shows that it is possible to divide clusters in our galaxy into two groups according to their position in the cluster density-radius plane. Another intriguing result is that the starting point for the evolution of these two groups appears to be within two rather confined density ranges.

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