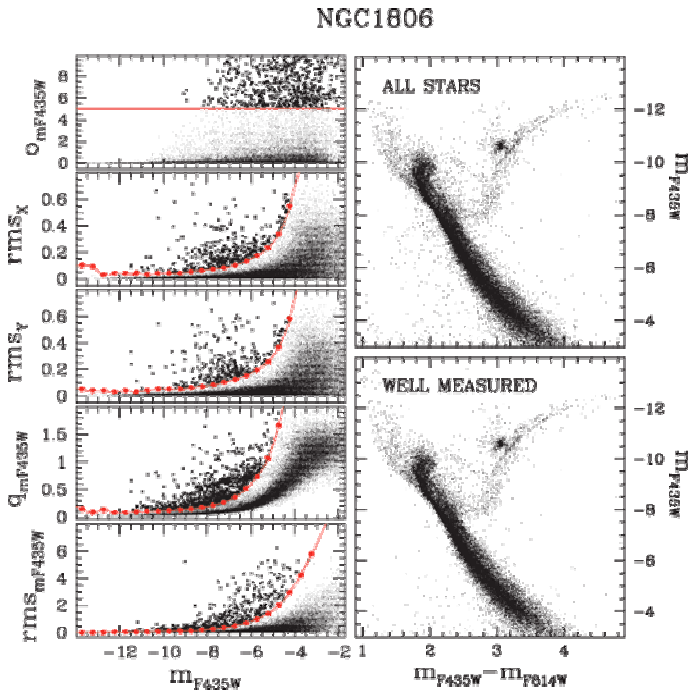
Astronomy & Astrophysics

HIGHLIGHTS: this week in A&A

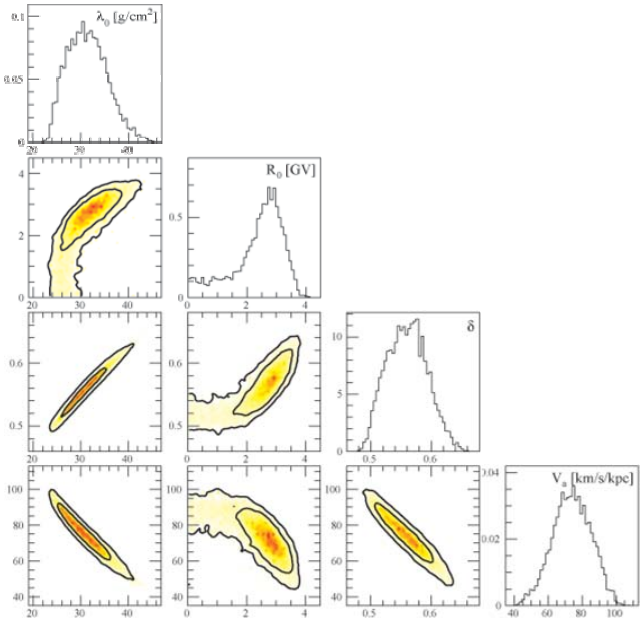
Volume 497-3 (April III 2009)



In section 5. Galactic structure, stellar clusters, and populations

"Multiple stellar populations in Magellanic Clouds clusters.I. An ordinary feature for intermediate age globulars in the LMC?", by A. P. Milone, L. R. Bedin, G. Piotto, and J. Anderson, A&A 497, p. 755

Accurate photometry has in the last few years challenged the long-held assumption that all globular clusters consist of a single homogeneous population, by identifying multiple branches in the colour-magnitude diagrams of a half dozen clusters. Milone et al. examine for the first time how often this occurs, through a homogeneous analysis of an unprecedented sample of 53 intermediate-age globular clusters in the Large Magellanic Cloud. They find that 70+-25% of that sample is inconsistent with the hypothesis of a single homogeneous stellar population. Most globular clusters therefore are more complex stellar systems than hitherto assumed.



In section 15. Numerical methods and codes

"A Markov Chain Monte Carlo technique to sample transport and source parameters of Galactic cosmic rays. I Method and results for the Leaky-Box model", by A. Putze, L. Derome, D. Maurin, L. Perotto, and R. Taillet, A&A 497, p. 991

This is a promising new approach, already used in cosmological parameter searches, to the heavy cosmic ray component observed by balloon and satellite instruments in the solar system. The model is a steady state, uniform medium disk with finite losses (the classical "leaky box" in which the losses depend on rigidity - also allowing for a cutoff). Using a bayesian approach, the technique provides assessment of correlations among contributing processes and rapid convergence to an appropriately small parameter range.