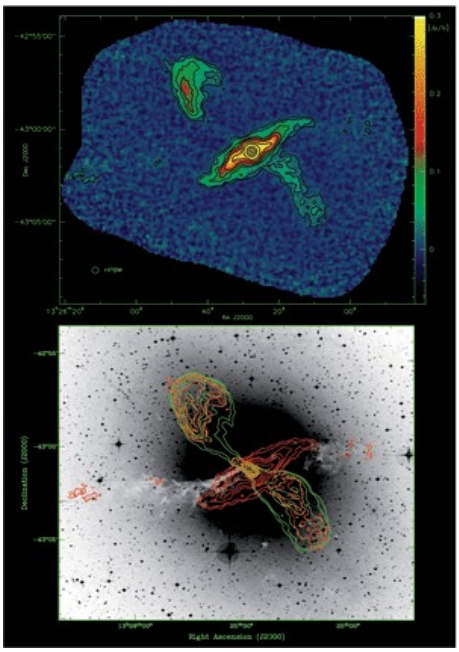
HIGHLIGHTS: this week in A&A

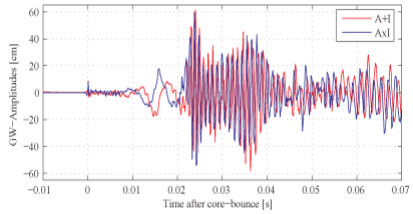
Volume 490-1 (October IV 2008)

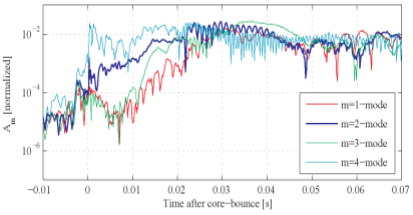
In section 4. Extragalactic astronomy

"LABOCA observations of nearby, active galaxies", by A. Weiss et al., A&A 490, p. 77

These are the first results for starburst galaxies obtained with the new 870 microns Large Apex BOlometer CAmera (LABOCA) at the Atacama Pathfinder EXperiment (APEX) antenna, in Chile. The continuum emission from cold dust was mapped for three galaxies: NGC 253, NGC 4945, and Centaurus A. For the first time, the cold dust distribution is traced until 7.5kpc from the center. These observations show these galaxies to be comparable to the Milky Way, with a dust temperature of 17-20K in the outer parts. At 30-40 K, the central parts are hotter due to the starbursts. In Centaurus A, the synchroton emission from the radio jets is also mapped.



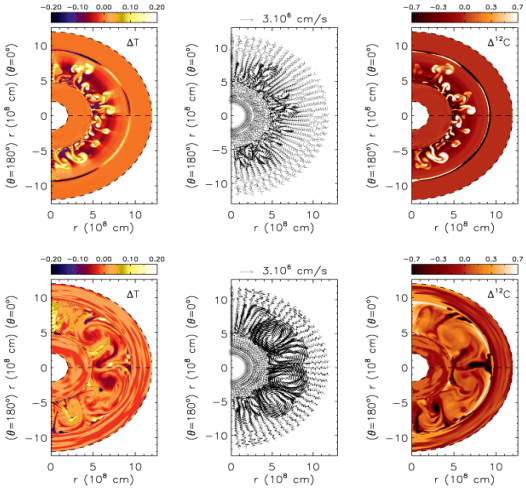




In section 7. Stellar structure and evolution

"Gravitational waves from 3D MHD core collapse simulations", by S. Scheidegger et al., A&A 490, p. 231

The main result of this article is the prediction of waveforms and polarizations for collapse and bounce modes of realistic pre-supernova models during the first few milliseconds. These models include rotation, magnetic fields, and neutrino emission prescriptions that are state of the art, and they are compared with current and planned gravitational wave observatories. This result has wide applications for planning these detector upgrades and will serve as a benchmark computation of 3D collapse.



In section 7. Stellar structure and evolution

"The core helium flash revisited. I. One and two-dimensional hydrodynamic simulations", by M. Mocák et al., A&A 490, p. 265

This paper presents 1D- and 2D-simulations of convection induced by the core helium flash in low-mass stars, using state-of-the-art hydrodynamics methods. It confirms earlier papers by finding that the induced convection efficiently distributes the high thermonuclear energy over the entire core, which prevents a violent hydrodynamic reaction of the star. Even though not shown directly, the paper conjectures that convective overshooting at the upper edge of the helium core may induce chemical mixing and thus alter the envelope chemical composition of red giants.