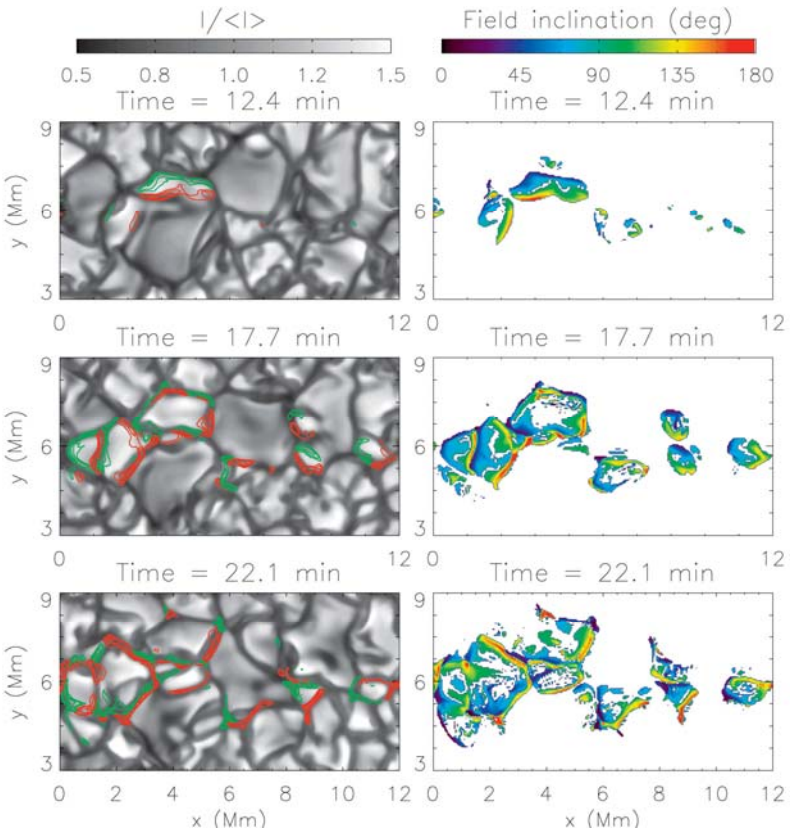
Astronomy & Astrophysics

# HIGHLIGHTS: this week in A&A

## Volume 467-2 (May IV 2007)




### Magnetic flux emergence

*"Magnetic flux emergence in granular convection: Radiative MHD simulations and observational signatures"* by M.C.M. Cheung et al. A&A 467, p. 703

This paper presents important new findings on the interaction of an emerging magnetic flux with the surrounding flow field. The simulations presented in the paper are as realistic as can be expected, but at least it can be done now and thus contribute to a basic understanding of magnetic flux emergence, which should interest a wide stellar community.

### In section 1. Letters

**"White dwarf masses derived from planetary nebula modelling"** by K. Gesicki and A.A. Zijlstra A&A 467, p. L29

The authors use a novel method for deriving the masses of white dwarf progenitors from the dynamics of the surrounding nebulae rather than from models of the stars themselves. They find a much sharper mass distribution than hitherto determined for white dwarfs, suggesting that mass error bars for white dwarfs might have been underestimated, which would have important implications for white dwarf evolution models.

### In section 6. Interstellar and circumstellar matter

**"Spatial distribution of interstellar gas in the innermost 3 kpc of our galaxy"** by K. Ferrière, W. Gillard, and P. Jean A&A 467, p. 611

This paper presents a critical discussion of nearly three decades of work on the complex distribution of gas in the inner Galaxy and synthesizes the large body of observations and theory into a single consistent picture. Its results are summarized in the form of parameterized models for the distribution of each component of the interstellar medium.

**"UVES/VLT high resolution spectroscopy of GRB 050730 afterglow: probing the features of the GRB environment"** by V. D'Elia et al. A&A 467, p. 629

This paper reports on the VLT spectroscopy of the interstellar medium of the host galaxy for this GRB, at a redshift of about 4, thus probing an early stage in the evolution of the diffuse cloud medium of a galaxy with unprecedented resolution (better than 20 km/s). The circumburst environment is distinguished from the more distant medium by its high ionization and the absence of fine-structure transitions. The mean metallicity, between 0.1% and 1% of the solar metallicity, is consistent with chemical evolution models.