CFEL SCIENCE

# Colloquium

**23. November 2012 - 14:00**
CFEL Seminar room I-III (DESY Bldg. 99)


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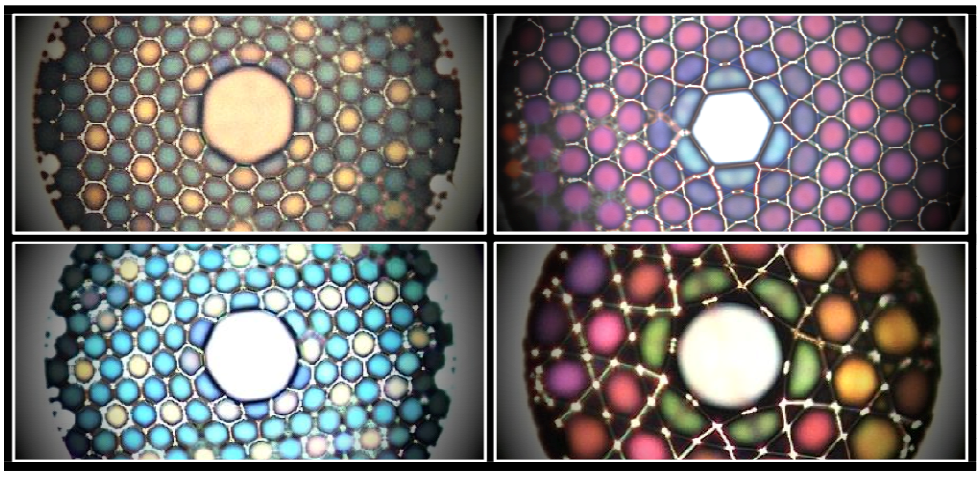
# Gas-Based Nonlinear Optics in Photonic Crystal Fibres


In its most common form, photonic crystal fibre (PCF) consists of a hair-thin thread of glass with a two dimensional array of tiny hollow channels running along its length. This periodic lattice makes it possible to guide light in new ways, for example, to trap it inside an empty core. In such a hollow-core PCF one is able for the first time to eliminate the diffraction of light over km distances in empty space. By filling the core with gases, nonlinear gas-laser interactions can be enhanced by seven orders of magnitude in the best case, while permitting precise control of dispersion. This has started a fresh chapter in nonlinear physics, pointing to a new generation of highly engineerable optical gas cells for studying complex coherent gas-laser effects in strongly interacting regimes. Recent results will be reviewed, including generation of tunable deep-UV radiation from 800 nm pump lasers and Raman frequency combs.

Host: Andrea Cavalleri, MPSD-CFEL