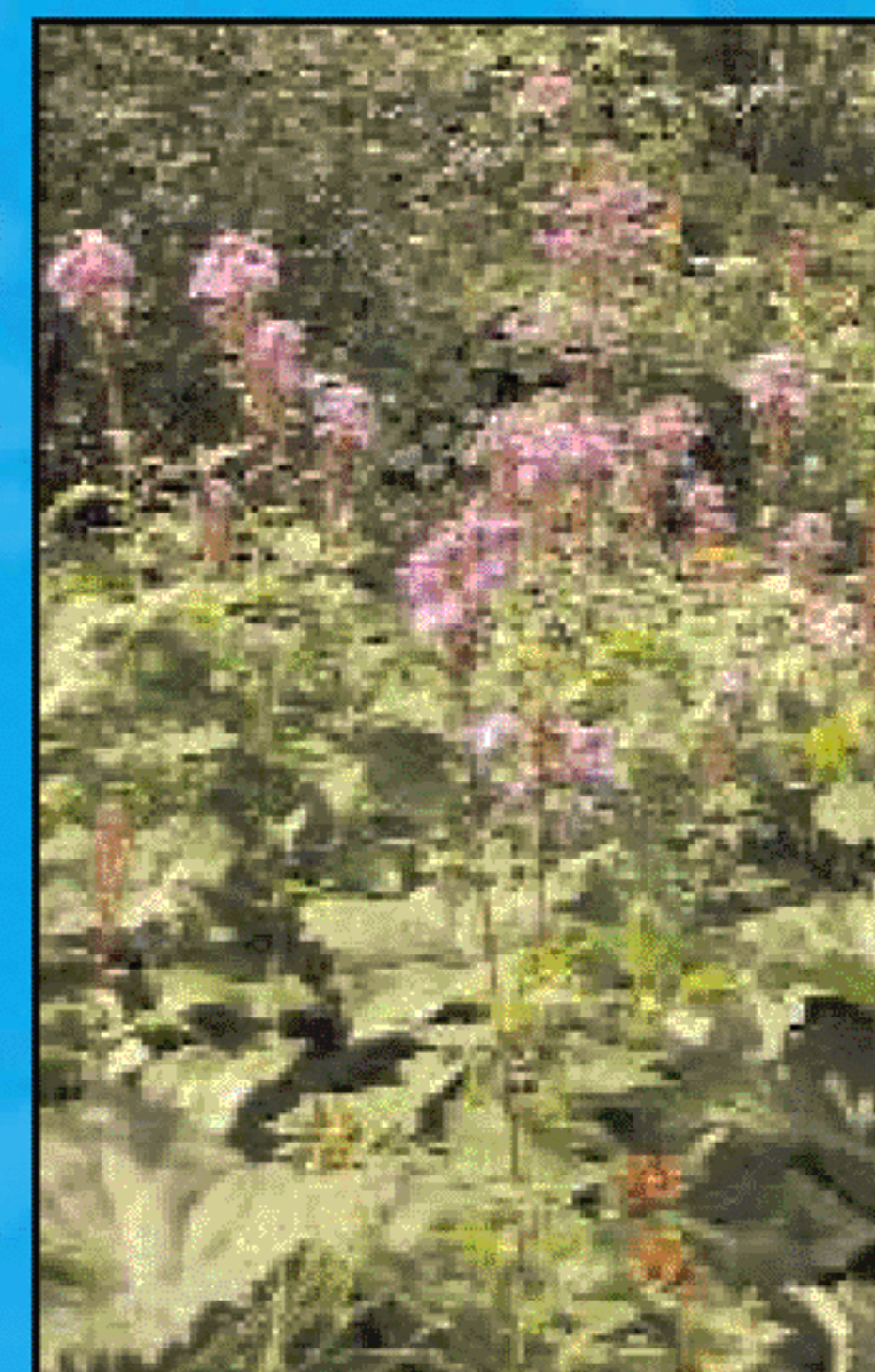


## RESEARCH NEWS

### Plants reveal a secret and bring researchers nearer a cleaner future

Using sunlight to power our homes and offices is an unaccomplished dream due to the still inefficient technology for a better use of solar energy. The study of photosynthesis in plants could provide new clues by explaining how they absorb almost 100% of the sunlight reaching them, and how they transform it into other forms of energy. Researchers Michael Haumann and Holger Dau, from the Freie Universität Berlin, used the X-ray source of the European Synchrotron Radiation Facility (ESRF) to investigate the kinetics of the photosynthesis process. They have confirmed the existence of a fifth step in the catalysis process converting water into oxygen.

*Haumann et al., Science, vol 310 (1019-1021).*



### The KB focusing systems at the ESRF get the “BESSY Innovation Award”

Researchers Christian Morawe, Olivier Hignette and Peter Cloetens have been jointly awarded the “Bessy Innovation Award” for 2005, “for their outstanding work on KB focusing systems.”

A common feature of the new synchrotron-radiation-based science is the need for ever-smaller beams of extremely high brilliance. These small spots have evolved, for hard X-rays (10-20 keV) from ~10 μm in the early days of the ESRF, to 40 nm obtained in a recent experiment on ID19. Among various other techniques presently in use, the ESRF promoted the development of the Kirkpatrick-Baez (KB) focusing scheme.

The KB development was launched, at the ESRF, in the late 1990s, with the use of dynamical bending devices holding pre-shaped Si substrates coated either with metallic films or with graded multilayer structures. The success of such a project required grouping competences of several highly-qualified scientists or engineers. A first crucial point is the quality of the multilayers used. The multilayers produced in the multilayer Laboratory, headed by C. Morawe (also Head of the Optics Group), preserve the coherence of the team and permit to obtain focus spots not attainable using other multilayers. The benders are the second key of this success. This work was performed under the lead of O. Hignette, senior engineer in the Optics Group. The implementation of these KBs on the most demanding beamline, the 150 m imaging beamline ID19, was carried out by P. Cloetens (scientist in the X-ray Imaging Group) as part of the research he is carrying out on the nano-imaging techniques.

This “Bessy innovation award” not only recognises the outstanding work of the three leaders and shows the added value of European cooperation, but also highlights the work of many other ESRF staff, in several divisions, involved in this development. Without the conjunction of all these competences, the success of the KB set-up at ESRF and at other SR facilities would have been impossible.

## EVENTS

### ESRF Users' Meeting 2006: Grenoble 7 and 8 February 2006

Two satellite workshops and a School for New ESRF Users will also be held:

3RD "SYNCHROTRON RADIATION SCHOOL FOR NEW ESRF USERS"

A WORKSHOP ON "HIGH PRESSURE AND SYNCHROTRON RADIATION"

A WORKSHOP ON "DYNAMICAL PHENOMENA IN SOFT MATTER"

<http://www.esrf.fr/NewsAndEvents/Conferences/UsersMeeting2006>