beam was sent into a 20-cm long cryogenic aluminum target vessel containing either hydrogen or ^{4}He in Jefferson Lab's Hall A. Septum magnets then deflected elastically scattered electrons, which were at a forward angle of 6°, to the Hall A High Resolution Spectrometers (HRS), located at 12.5°.

The HRS allowed a very clean separation of elastic events, with an average value of momentum-transfer squared, $Q^2 = 0.1$ $(GeV/c)^2$. A Cherenkov electromagnetic shower calorimeter covered the distribution of elastic events in the spectrometer focal plane. The signal was integrated over each period of constant helicity. A blinding factor was placed on the data and removed only a week before the result was presented in Dallas.

The HAPPEx results indicate small values for the strange form factorss $G^s_M = 0.12 \pm 0.24$ and $G^s_E = -0.002 \pm 0.017$. While these results are consistent with previous results from HAPPEx (Aniol *et al.* 2006) and world data, they reveal that the large values and possible radical Q^2 dependence of the strange form factors suggested by previous data in this kinematic region, are highly unlikely. Also, while these new data are accurate enough to eliminate many models of strangeness content, they do not rule out sizable contributions at higher Q^2. They are also compatible with a new analysis of world data, the result of which is in excellent agreement with modern calculations based on non-perturbative quantum chromodynamics using lattice methods and chiral extrapolation (Young *et al.* 2006).

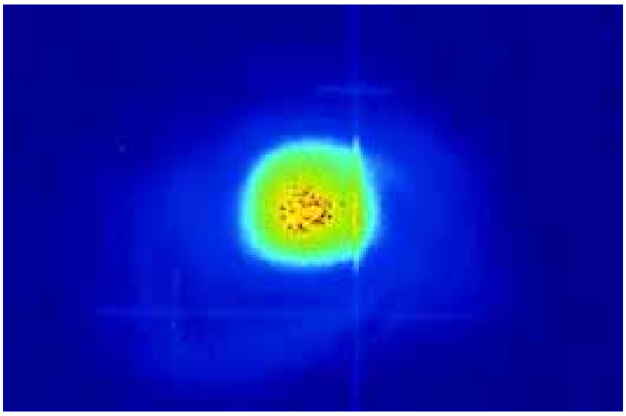
Further Reading

K. A. Aniol *et al.*, Phys. Lett. **B** 635, 275 (2006) and Phys. Rev. Lett. **96**, 022003 (2006).

R. D. Young *et al.*, www.arXiv.org/abs/nucl-ex/0604010 (2006), submitted to Phys. Rev. Lett.

FLASH Produces the Shortest Wavelength yet[2]

On 26 April, the vacuum-ultraviolet and soft X-ray free-electron laser (FEL) facility at DESY generated pulses at the shortest wavelength yet, using electron bunches supplied by the TESLA Test Facility (TTF) linac. The laser facility already produced the shortest wavelengths achieved with a FEL, with pulses at 32 nm. Now it has reached a new record with a wavelength of only 13.1 nm.



Single-shot image taken when the radiation pulse at 13 nm from DESY's free-electron laser hits a scintillating Ce:YAG crystal. (Courtesy DESY Hamburg.)

Equipped with five superconducting accelerator modules, the TTF linac can accelerate electron bunches to an energy of 700 MeV. This is sufficient for the bunches to emit laser pulses at 13.1 nm as they subsequently traverse the undulator. A sixth module, to be installed in 2007, will allow a further increase in energy to 1 GeV, making it possible to generate wavelengths as low as 6 nm. The pulses produced are shorter than 50 fs, leading appropriately to the new name for the facility, FLASH, which was chosen to be simpler and more attractive than VUV-FEL.

After a successful first data-taking run that ended in February, on 8 May the newly named FLASH began once again to serve its users for a second measuring period.

MAGIC Discovers Variable Very-High-Energy Gamma-Ray Emission from a Microquasar[3]

The Major Atmospheric Gamma-ray Imaging Cherenkov (MAGIC) Telescope has discovered variable very-high-energy gamma-ray emission from a microquasar. The telescope, on the island of La Palma, observed the microquasar called LS I +61 303 between October 2005 and March 2006. The observations show a clear variation with time and suggest that gamma-ray production may be a common property of microquasars.

Microquasars are gravitationally bound binary-star systems consisting of a massive ordinary star and a compact object of

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[3] *The permission for reprinting the present report, as published previously in CERN Courier, Vol. 46, No. 6, July/August 2006, was granted through CERN Courier, http://www.cerncourier.com/.*