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**Experimental ionization of atomic hydrogen with few-cycle laser pulses**[1] D. KIELPINSKI, M.G. PULLEN, W.C. WALLACE, D.E. LABAN, A.J. PALMER, R.T. SANG, Australian Research Council Centre of Excellence for Coherent X-Ray Science and Centre for Quantum Dynamics, Griffith University, Brisbane, Australia, G.F. HANNE, Atomic and Electronics Physics Group, Westfalische Wilhelms-Universitaet, Muenster, Germany, K. BARTSCHAT, Department of Physics and Astronomy, Drake University, Des Moines, Iowa, USA, H.A. QUINEY, Australian Research Council Centre of Excellence for Coherent X-Ray Science, University of Melbourne, Melbourne, Australia — We report the first experiments on ionisation of atomic hydrogen using few-cycle laser pulses. Light from an amplified titanium:sapphire laser system is compressed in a hollow-core fiber to produce 6 fs, 100 $\mu$J pulses. These pulses are focused through a beam of atomic hydrogen at peak intensities up to $10^{15}\mathrm{W}/cm^2$. The resulting photoelectrons are energetically filtered by an electrostatic repeller and the high-energy electrons are detected by a channeltron, yielding a measurement of the integrated electron energy spectrum above the repeller voltage. The data are compared to theoretical electron spectra computed by a matrix iteration method.

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