

The Beams and Applications Seminar Series

Generation of XUV supercontinuum and attosecond pulses by half-cycle gating

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Bldg. 401, room B2100
Friday, Mar. 26, 1:30 pm
Host: Y. Li, ASD

Single attosecond pulses at the cutoff region of high-order harmonic spectra have been generated using few-cycle laser pulses. We report a unique method that used birefringence optics to create a laser pulse whose polarization varied rapidly from circular to linear and back to circular, in order to produce single attosecond pulses over the much broader plateau spectrum region. When a 8 fs pulse centered at 850 nm was split and delayed with a quartz plate, then recombined with a quarter waveplate, the near-linearly polarized portion of the resultant pulse was only 1.3 fs long that was much shorter than the laser pulse duration. The ellipticity dependent pulse behaved like a half-cycle linearly polarized pulse for generating high-order harmonics that is susceptible to ellipticity. By exciting argon gas with the pulse, a supercontinuum that covered 25 to 45 nm was produced in the plateau and cutoff region of high harmonic spectrum, which corresponds to an estimated single 200 attosecond pulse. The synchrotron like XUV spectrum is very important for time-resolved absorption spectroscopy and for feeding x-ray FEL.

For more information visit

<http://www.aps.anl.gov/asd/physics/seminar.html>

Visitors from off-site please contact Yuelin Li
(ylli@aps.anl.gov, 630-252-7863) to arrange for a gate pass.

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