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POS-C16 – Femtosecond Streaking in Ambient Air

Wednesday 9 June 2021 13:59 (2 minutes)

We demonstrate a novel method to measure the temporal electric field evolution of ultrashort laser pulses. Our technique is based on the detection of transient currents in air plasma. These directional currents result from subcycle ionization of air with a short pump pulse and the steering of the released electrons with the pulse to be sampled. We assess the validity of our approach by comparing it with different state-of-the-art laser-pulse characterisation techniques. Notably, our method works in ambient air and facilitates a direct measurement of the field waveform, which can be viewed in real time on an oscilloscope in a similar way as a radio frequency signal.

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