

Experimental observation of trajectories beyond the long in high order harmonic generation

We experimentally observe longer than long trajectory influence in high order harmonic generation by varying the peak intensity of the driving laser field through either direct attenuation, or by chirping the laser pulse. We compare this to a simple Gaussian beam model to explain the shape of the on and off-axis quantum path interference (QPI) observed. From the resulting harmonic specific QPI patterns, we observe a clear shift in the structure that cannot be explained through just the well established short and long trajectory contributions. The effect of this is prominent for the more divergent, off-axis components of the lower plateau harmonic region, and is thus of importance for understanding and controlling the fundamentals of the HHG process.

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