

Lightwave control of laser-plasma interactions

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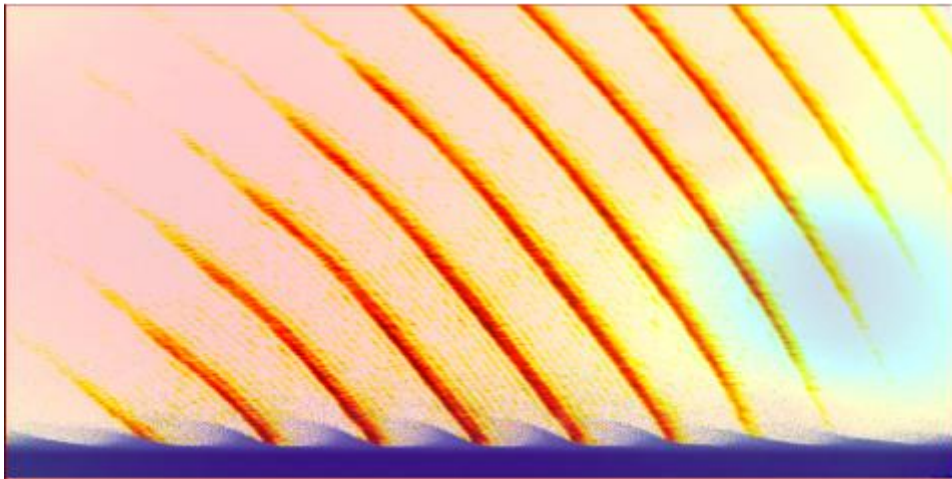
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Two major trends are emerging in ultrafast optics today: On the one hand, extreme light intensities produced by large-scale femtosecond lasers are used to trigger collective motion of relativistic electrons in plasmas -up to GeV energy, thus paving the way towards table-top laser-driven sources of ultrafast particle and radiation beams. On the other hand, waveform-controlled few-cycle light fields delivered by smaller lasers are now routinely used to control few-electron dynamics in atoms in molecules on the attosecond time scale. Our work lies at the interface: we use relativistic-intensity few-cycle light fields to control the collective motion of plasma electrons on the attosecond time scale.



Synchronized photon and electron bunches driven off a solid density plasma