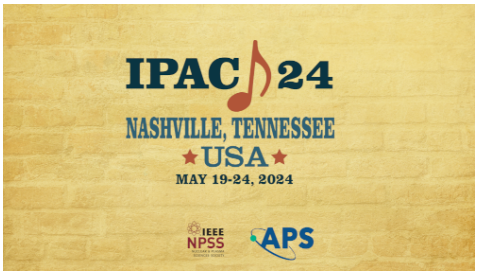

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Extreme pulse compression for impulsive ionization of valence wavepackets

Monday, 20 May 2024 16:00 (2 hours)

We show how a chicane with anomalous dispersion can be used to compress an electron beam into a narrow, high-current, spike by exploiting the intrinsic chirp created by collective effects. We explore the limits of compression in a linearized model and then apply these beams to impulsively pump valence electrons. In the limit of an ultrashort electron beam, the valence electron wave-packet is accelerated so rapidly that the excited state forms an image of the bound state, allowing for unique insight into the structure of the electronic states of a molecule.

Footnotes

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Primary author: CESAR, David (SLAC National Accelerator Laboratory)

Co-author: MARINELLI, Agostino (SLAC National Accelerator Laboratory)

Presenter: CESAR, David (SLAC National Accelerator Laboratory)

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