

Abstract Submitted
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Watching electrons tunnel SIMON MOSER — To get insight to time resolved inner atomic or molecular processes, laser pulses of few femtoseconds or even attoseconds are needed. These short light pulse techniques ask for broad frequency spectra, control of dispersion and control of phase. Hence, linear optics fails and nonlinear optics in high electromagnetic fields is needed to satisfy the amount of control that is needed. One recent application of attosecond laser pulses is time resolved visualization of tunnel ionization in atoms applied to high electromagnetic fields. Here, Ne atom electrons are excited by an extreme ultraviolet attosecond laser pulse. After a while, a few cycles nearly infrared femtosecond laser pulse is applied to the atom causing tunnel ionization. The ion yield distribution can be measured as function of the delay time between excitation and ionization and so deliver insight to the time resolved mechanisms.

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