Attosecond streaking in dielectrics **P 27**

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Scattering of electrons in dielectrics is at the heart of laser nanomachining, light-driven electronics, and radiation damage. Accurate theoretical predictions of the underlying dynamics require precise knowledge of the low-energy electron transport involving elastic and - even more important - inelastic collisions. Here, we demonstrate real-time access to electron scattering in isolated SiO2 nanoparticles via attosecond streaking [1]. Utilizing semiclassical Monte-Carlo trajectory simulations [2,3] we identify that the presence of the field inside the dielectric cancels the influence of elastic scattering, enabling selective characterization of the inelastic scattering time [4,5].

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Complex dynamics of non-autonomous oscillator with controlled external force **P 28**

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A non-autonomous oscillator with controlled phase and frequency of external action is studied. In the system hierarchy of chaotic oscillations and multistability were observed. Detailed study of different parameter planes was curried out. Fourier spectrums for chaotic signals were analyzed.

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Dynamics of a two layers neuronal model: bifurcation, stability and synchronization analysis of the emergent dynamics. **P 29**

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We study the dynamical attributes of a large scale microscopic neuronal model, which consists of two connective layers. Each of the layers forming a complex network that interact through excitatory – inhibitory synapses, forming a local circuit. Using the Equation Free Methodology, we perform Numerical Bifurcation and stability analysis with respect to the critical parameters which characterize the structure of the network. We investigate the synchronization properties between the layers as a function of interconnections and we exam the applicability of stochastic resonance theory.