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Generation of strong-field below threshold harmonics JENNIFER TATE, METTE GAARDE, KENNETH SCHAFER, Louisiana State University — We study the production of low energy and below threshold harmonics in xenon excited by a short-pulse 1070 nm laser. The frequently used method of calculating harmonic generation at the single atom level via the strong-field approximation is insufficient to describe these harmonics due to the increased importance of the atomic potential. To more accurately model this system we have developed a code that computes the single-atom response by direct numerical integration of the time-dependent Schrödinger equation and couples this to a non-adiabatic solution of the Maxwell wave equation. This gives us the ability to calculate the combined microscopic-macroscopic response of the gas system while treating the laser electric field and the atomic potential on an equal footing. Early results show that the below threshold harmonics include a contribution with a strongly intensity-dependent dipole phase, analogous to the familiar long trajectory in above threshold high harmonic generation.

Jennifer Tate
Louisiana State University

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