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Creation and control of single attosecond XUV pulse by few-cycle intense laser pulse JUAN J. CARRERA, Department of Chemistry, University of Kansas, X.M. TONG, Institute of Materials Science, University of Tsukuba, SHIH-I CHU, Department of Chemistry, University of Kansas — We present a theoretical investigation of the mechanisms responsible for the production of single atto-second pulse by using few-cycle intense laser pulses. The atto-second XUV spectral is calculated by accurately integrating the time- dependent Schrödinger equation. The detailed mechanism for the production of the XUV pulse are also corroborated by analyzing the classical trajectories of the electron. Our study shows that the first return of the rescattering electron is responsible for the high energy atto-second pulse. Furthermore, we can optimize the production of atto-second XUV pulses by modifying the trajectory of the rescattering electron by tuning the laser field envelope.

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