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Electron correlations in harmonic generation spectra of beryllium[1] JEAN MARCEL NGOKO DJIOKAP, ANTHONY F. STARACE, Department of Physics & Astronomy, The University of Nebraska, Lincoln, NE 68588-0299 — By solving the full dimensional two-active-electron time-dependent Schrödinger equation in an intense ultrashort laser field, we show that even electron correlations occurring over a narrow energy interval have a significant effect on such strong field processes as high harmonic generation (HHG). As the laser pulse frequency varies from 1.2 eV to 1.8 eV, several harmonics become resonant sequentially with particular autoionizing states, which greatly enhances their intensities. Such resonance features in Be HHG spectra are found to be three times more pronounced than for He [1]. Unlike for He, whose doubly-excited states are at very high energies above the ground state, those for Be lie at lower energies, making *ab initio* calculations for frequencies near those of the Ti: sapphire laser feasible in the multiphoton regime. These results demonstrate the crucial role of electron correlation effects on HHG processes in this regime.

[1] J.M. Ngoko Djiokap and A.F. Starace, Phys. Rev. A **84**, 013404 (2011).

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