Abstract Submitted
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DC and subcycle-resolved AC Stark shifts in Helium[1] AIHUA LIU, UWE THUMM, Kansas State University — We are developing a finite element discrete variable representation (FE-DVR) code to model the response of two-electron atoms to ultra-short pulses of EM radiation. Our first numerical results for the DC stark shift of helium deviate significantly from previous [1] single-active-electron (SAE), but are in close agreement with improved SAE calculations that include the effect of core polarization in the external field. For $3x10^{14}$ W/cm^2 infra red fields, we calculate sub-IR-cycle- resolved instantaneous (AC) level shifts of low-lying bound He states that also strongly deviate from the SAE prediction [1]. We plan to apply our code to model recently measured subcycle time-resolved absorption spectra [2].

[1] F. He, C. Ruiz, A. Becker, and U. Thumm, J. Phys. B **44**, 211001 (2011).
[2] H. Wang, M. Chini, S. Chen, C.-H. Zhang, F. He, Y. Cheng, Y. Wu, U. Thumm, and Z. Chang, Phys. Rev. Lett. **105**, 143002 (2010); M. Chini, Z. Chang *et al.*, to be published.

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