

Abstract Submitted  
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**Density Functional study of Wigner-Smith time delays in photoionization and photorecombination of argon**<sup>1</sup> MAIA MAGRAKVELIDZE, Northwest Missouri State University, MOHAMED MADJET, QEERI, Doha, Qatar, GOPAL DIXIT, MBI, Berlin, Germany, MISHA IVANOV, MBI, Berlin, Germany; Blackett Laboratory, Imperial College London, UK, HIMADRI CHAKRABORTY, Northwest Missouri State University — We investigate quantum phases and Wigner-Smith time delays in photoionization and photorecombination of valence electrons of argon [1, 2] using Kohn-Sham time-dependent local density approximation (TDLDA) [3] with the Leeuwen and Baerends exchange-correlation functional. Numerical results for the phases at respective 3p and 3s Cooper minima show opposite variations resulting from the correlation that is based on mutual couplings between 3p and 3s channels. Computed attosecond Wigner-Smith time delays show excellent agreements with two recent independent experiments on argon that measured the relative 3s–3p time delay in photoionization [4] and the delay in 3p photorecombination [5].

- [1] Magrakvelidze et al. (in review);
- [2] Dixit et al., PRL 111, 203003 (2013);
- [3] Madjet et al., PRA 81, 013202 (2010);
- [4] Kluender et al., PRL 106, 143002 (2011);
- [5] Schoun et al., PRL 112, 153001 (2014).

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