

Abstract Submitted  
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**Angle resolved Wigner time delay studies in the photodetachment of  $\text{Br}^-$  and  $\text{I}^-$**  S. SAHA, IIT-Madras, A. MANDAL, P. C. DESHMUKH, IISER-Tirupati, A. S. KHEIFETS, Australian National U., V. K. DOLMATOV, U. North Alabama, S. T. MANSON, Georgia State U. — Time resolved studies of atomic photoionization have become a rapidly growing research area. Recent studies of photodetachment time delay [1, 2] in negative ions has enabled us to see the effect of centrifugal barrier shape resonances on the time delay, as well as obtain the pure Wigner delay uninfluenced by the large Coulomb component and, hence, free from the Coulomb-Laser-coupling [3]. Photoionization time delay depends on the angle between the momentum direction of the outgoing photoelectron and the laser polarization [4, 5]. In the present study we report the angle dependence of photodetachment time delay for  $\text{Br}^-$  and  $\text{I}^-$  in the region of the centrifugal barrier shape resonance. In particular, we study outer  $nd \rightarrow \varepsilon f$  transitions for both the singly charged negative ions,  $\text{Br}^-$  and  $\text{I}^-$ . Calculations have been performed using relativistic random phase approximation (RRPA) [6]. [1] S. Saha *et al*, Bull. Am. Phys. Soc. **61**(8), 53 (2016); [2] E. Lindroth and J. M. Dahlström, Phys. Rev. A **96**, 013420 (2017); [3] R. Pazourek *et al*, Rev. Mod. Phys. **87**, 765 (2015); [4] J. Wätzel *et al*, J. Phys. B **48**, 025602 (2015); [5] A. Mandal *et al*, Phys. Rev. A **96**, 053407 (2017); [6] W. R. Johnson and C. D. Lin, Phys. Rev. A **20**, 964 (1979).

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