

Abstract Submitted
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Up-down asymmetry of the electrons ejected from barium $6p_{1/2}nk$ autoionizing states¹ JIRAKAN NUNKAEW, TOM GALLAGHER, University of Virginia — The Ba $6p_{1/2}nk$ autoionizing Stark states do not have well-defined parities but have the Rydberg electrons localized in the upfield or downfield side of the atom. As a result when they autoionize the angular distributions of ejected electrons are not up/down symmetric with respect to the laser polarization direction. In this experiment, we measure the ejected electron signals from Ba $6p_{1/2}nk$ autoionizing Stark states, of $n=28$ and 29 , produced by linearly polarized laser excitation in weak electric fields of less than 15 V/cm. In the weak electric field region, the energy gained by the ejected electrons is comparable to the initial energy of the ejected electron. This makes the observation of the up/down asymmetry of the ejected electrons possible. We observe that the electrons from Ba $6p_{1/2}nk$ autoionizing red states are ejected preferentially in the upfield direction while the electron from Ba $6p_{1/2}nk$ autoionizing blue states are ejected preferentially in the downfield direction.

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