

Abstract Submitted  
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**Resonance structure of the photoelectron  $\beta_{nl}$  parameter versus autoionizing resonance minima in partial  $\sigma_{nl\pm 1}$  cross sections: A model of “complete” experiments with *fewer* measurements<sup>1</sup>** VALERIY DOLMATOV, EMRE GULER, University of North Alabama — The relationship between the structure of the autoionizing resonance minima in partial photoionization cross sections  $\sigma_{nl\pm 1}$  and the resonance profile of the dipole photoelectron angular distribution parameter  $\beta_{nl}$  in the vicinity of the resonance is established. From this, the information can be extracted (from known  $\beta_{nl}$  alone) on the energy positions and ordering of autoionizing resonance minima in  $\sigma_{l\pm 1}$ , the energies at which  $\sigma_{l+1}$  and  $\sigma_{l-1}$  are equal, signs and magnitudes of relative phase shifts of the photoionization amplitudes  $D_{l\pm 1}$  through the autoionizing resonance energy region, and the magnitudes of  $D_{l\pm 1}$  at extreme points in  $\beta_{nl}$ ; no tedious experimentation with electron spin polarization or light polarization is required. The established relationship expands our previously developed, so to speak “point” model of “complete” photoionization experiments with *fewer* measurements [V.K. Dolmatov and S.T. Manson, PRA **58**, R2635 (1998)] onto a broader energy region [V.K. Dolmatov, E. Guler, S.T. Manson, PRA (submitted)].

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