ROTATIONALLY RESOLVED SPECTROSCOPY OF THE ELECTRONICALLY EXCITED C AND D STATES OF ArXe AND KrXe

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Rotationally resolved (1+1') resonance-enhanced two-photon ionization spectra of the D and C $\leftarrow$ X 0^+ band systems of several isotopomers of ArXe and KrXe were recorded using a narrow-bandwidth VUV laser system[a] at a resolution of 0.01 cm^{-1} in the wave number range from 77000 cm^{-1} to 77400 cm^{-1}[b]. The analysis of the rotational structures enabled the characterization of the dissociation of the Ω = 1 states of ArXe and KrXe[c]. In the case of Rg^{129}Xe and Rg^{131}Xe (Rg=Ar, Kr), the hyperfine structure could also be resolved and provided new information on these states, and on the nature of the perturbations[d,e]. Model potentials for the perturbing and perturbed excited states were constructed in an attempt to rationalize the spectroscopic data. The spectra of the C and D states of ArXe and KrXe reveal strong perturbations[(c−e)], and are subject to slow predissociation.

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