

ROTATIONALLY RESOLVED SPECTROSCOPY OF THE ELECTRONICALLY EXCITED C AND D STATES OF XeKr AND XeAr

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Information on excited electronic states of the heteronuclear rare-gas dimers XeRg (Rg=Kr, Ar) available in the literature are limited to the vibrational structure of several band systems in the VUV range of the electromagnetic spectrum.^a Using a near-Fourier-transform-limited vacuum-ultraviolet laser system^b spectra of the C ← X and D ← X band systems of several isotopomers of XeKr and XeAr were recorded at high resolution in the wavenumber range from 77 000 cm⁻¹ to 77 350 cm⁻¹ by resonance-enhanced two-photon ionization spectroscopy. The rotational and vibrational structures of the C ← X and D ← X band systems could be fully resolved and assigned on the basis of isotopic shifts, combination differences and the ground state microwave spectra^c. The orbital hyperfine structure of the C1 state could be resolved for the ¹²⁹Xe⁴⁰Ar and ¹³¹Xe⁴⁰Ar isotopomers. Potential energy functions and a full set of spectroscopic parameters were derived for the ground and excited states.

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