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

LORENA PITICCO, MARTIN SCHÄFER, and FRÉDÉRIC MERKT, *ETH Zürich, Laboratorium für Physikalische Chemie, Wolfgang-Pauli-Strasse 10, 8093 Zürich, Switzerland*.

Informations 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 $\leftarrow$ X and D $\leftarrow$ 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 $\leftarrow$ X and D $\leftarrow$ 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 $^{129}Xe^{40}Ar$ and $^{131}Xe^{40}Ar$ isotopomers. Potential energy functions and a full set of spectroscopic parameters were derived for the ground and excited states.

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