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【631】Hyperfine effects in the vibrational spectroscopy of $Cl^-(H_2)$ and $Cl^-(D_2)$ complexes

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The predissociation spectra of the $^{35}Cl^-(H_2)$ and $^{35}Cl^-(D_2)$ complexes are measured at low frequencies between 400 and 800 cm^{-1} in an ion trap at different temperatures. Above a certain temperature, the ligand switching between the two isotopologues *ortho* and *para* leads to a strong suppression of the excited hyperfine configuration. Performing the experiment below 30 K and 22 K for $Cl^-(H_2)$ and $Cl^-(D_2)$, respectively, we can detect the more weakly bound complexes.
Due to accurate quantum calculations, the bands in the $Cl^-(H_2)$ complex have been assigned to the intermonomer vibrational stretching mode.

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