PROBING THE ELECTRONIC STRUCTURE OF YbCl USING LASER SPECTROSCOPY

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The high resolution spectrum of the $A^2\Pi$-$X^2\Sigma^+$ transition of YbCl has been recorded near 550 nm using laser excitation spectroscopy. The output of a Coherent 699-29 ring dye laser operating in single frequency mode was used to obtain Doppler-limited spectra. Selective detection of laser induced fluorescence was utilized to record spectra with an accuracy of 0.003 cm^{-1}. Unequivocal assignment of the rotational numbering was obtained using resolved fluorescence spectra. Data from two isotopomers, $^{172}Yb^{35}Cl$ and $^{174}Yb^{35}Cl$, have been employed in a least-squares fit of sets of molecular constants. The rotational analysis of the A - X system will be discussed.