

HIGH RESOLUTION LASER SPECTROSCOPY OF THE $A0^+ - X0^+$ SYSTEM OF YbS

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The first spectroscopic observation of YbS has been made using visible laser absorption spectroscopy. The $A0^+ - X0^+$ electronic transition of $^{172}\text{Yb}^{32}\text{S}$, $^{174}\text{Yb}^{32}\text{S}$ and $^{176}\text{Yb}^{32}\text{S}$ has been recorded using the output of a Coherent 699-29 ring dye laser with selective detection of fluorescence. Spectra of the 0-0, 0-1, 1-1, 1-2, 2-2 and 2-3 bands were recorded with a measurement precision of approximately 0.003 cm^{-1} , and from perturbations observed in the structure of the 2-2 and 2-3 bands, it was concluded that a level crossing occurs in the $A0^+ v=2$ level. In total, over 1500 line positions have been measured, assigned and employed in least-squares fits of the molecular parameters. The deperturbation and rotational analysis of the $A - X$ system will be discussed.