ELECTRONIC TRANSITIONS OF YTTRIUM MONOXIDE

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The electronic transition spectrum of yttrium monoxide (YO) in the spectral region between 284nm and 307nm has been recorded using laser ablation/reaction free-jet expansion and laser induced fluorescence (LIF) spectroscopy. The YO molecule was produced by reacting laser-ablated yttrium atoms with O_2 seeded in argon. Twenty transition bands were observed in that region and a few bands were selected for further study using optical-optical double resonance (OODR) spectroscopy. The excited $C^2\Pi$ state has been reached via the intermediate $B^2\Sigma^+$ state from the ground $X^2\Sigma^+$ state. The excited sub-states observed so far have Ω = 0.5 and 1.5. A least squares fit of the measured rotational lines yielded molecular constants for the newly observed excited states.