

HIGH RESOLUTION LASER SPECTROSCOPY OF RHODIUM MONOPHOSPHIDE

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High resolution laser spectra of RhP have been acquired in the visible region of the spectrum. The molecules were produced by laser ablation of a rhodium target rod followed by reaction with 2% PH₃ seeded in He in a pulsed supersonic jet. At least three electronic transitions with extensive upper state vibrational progressions have been observed by laser-induced fluorescence between 420 nm and 510 nm. All the bands are degraded to longer wavelengths and have an R branch which rapidly forms a head and a more open P branch. First lines in the bands were seen allowing line assignments which are consistent with $^1\Sigma - ^1\Sigma$ transitions. Dispersed fluorescence from the bands give a ground state vibrational interval of approximately 507 cm⁻¹ plus also indicate the presence of low-lying electronic states at 2454 cm⁻¹ and 4691 cm⁻¹. Molecular constants for the excited and ground states will be presented.