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LASER INDUCED FLUORESCENCE SPECTROSCOPY OF SCANDIUM MONOIODIDE

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The laser induced fluorescence spectrum of scandium monoiodide (ScI) between 787 and 814 nm has been recorded. ScI molecule was produced by reacting laser vaporized Sc atoms with methyl iodide (CH₃I). Spectra of eleven vibrational bands of the C¹Σ⁺ - X¹Σ⁺ transition of ScI were obtained and analyzed. A merged least-squares fit of the measured line positions yielded accurate molecular constants for the upper levels of the C¹Σ⁺ state and the v = 1 - 4 levels of the X¹Σ⁺ state. One vibrational band observed at 11627 cm⁻¹ belongs to a sub-band transition of the a³Δ state, which is found to be perturbed by the X¹Σ⁺ state. Details of the perturbation and molecular constants obtained will be reported.