

SINGLE-COLOR
THREE-PHOTON SPECTROSCOPY
OF EXCITED STATES OF A SAMARIUM ATOM

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S u m m a r y

A technique of single-color three-photon resonance-ionization spectroscopy of highly excited even-parity states of a samarium atom is developed. It provides the use of only one source of laser radiation and is based on the detection in three-photon ionization spectra measured at different strengths of the laser field of groups of maxima due to the excitation of the same upper levels from different initial levels of the ground term. The spectrum of even-parity states of a samarium atom located in the energy range 34298–40527 cm⁻¹ is investigated. The energies and total angular momentum of 272 states are determined. Sixteen new even-parity states, data on which are absent in the literature, are discovered.