OPTICA APPLICATA online
open access
A quarterly of the Institute of Physics, Wroclaw University of Technology
Wroclaw University of Technology
INSTITUTE OF PHYSICS

Optica Applicata 2006(Vol.36), No.4, pp. 535-541

The *E*2 admixture in mixed multipole line 647.6 nm in the spectrum of Bi I

S. WERBOWY, J. KWELA

Keywords

hyperfine structure, forbidden transitions, transition probability

Abstract

A study of the hyperfine structure of mixed multipole line 646.7 nm of Bi I is reported. A special computer program was designed to obtain the predicted contour of the hyperfine structure of the line for different values of the electric-quadrupole admixture. By variation of free parameters, describing the line shape and the electric-quadrupole admixture D, defined as the ratio of the magnetic-dipole and electric-quadrupole decay rates $D = A^{E2}/(A^{M1} + A^{E2})$, the calculated profiles were fitted into the recorded spectra. The D value of the best fit found is $(17.8 \pm 1.0)\%$. Our result is compared with recent theories and other experiments.