

ENERGY LEVELS AND SPECTRA OF THE Li I AND Be I ISOELECTRONIC SEQUENCES IN THE FOURTH ROW

S. GOLDSMITH, U. FELDMAN, L. OREN, and L. COHEN
Dept. of Physics and Astronomy, Tel-Aviv University, Ramat-Aviv, Israel

In the spectra of highly ionized atoms, lines corresponding to different degrees of ionization appear simultaneously on the same region of the photographic plate. Many difficulties are encountered in experimental assignment of the lines to the ionization they correspond to. As a result of this there is a special significance in exact calculations of energy levels. An accurate determination by some theoretical procedure can solve the problem of ionization differentiation.

Throughout this work we present theoretical calculations of energy levels of d and p electrons for ions of the fourth row in the isoelectronic sequences of Li I , Be I . We have also calculated the splitting of the various levels.

Wavelengths corresponding to transitions between these energy levels and the ground configuration are also presented.

The identification of these transitions is done mainly on the basis of foregoing theoretical calculations of energy levels and ratios of intensity.