

Scaling Relation for the Energy Levels of a Hydrogen Atom at High Pressures

Y. P. Varshni

Department of Physics, University of Ottawa, Ottawa, Canada K1N 6N5

Reprint requests to Prof. Y. P. V.; E-mail: ypvshj@uottawa.ca

Z. Naturforsch. **57 a**, 915–918 (2002); received June 21, 2002

The effect of high pressure on a hydrogen atom has frequently been simulated by enclosing the atom in an impenetrable spherical box. It is shown that for such a confined hydrogen atom placed at the centre of a spherical box a simple scaling relation exists between the energy and the radius of the confining box for 1s, 2p, 3d, and 4f levels, and another similar relation exists for 2s, 3p, and 4d levels.

Key words: Confined Hydrogen Atom; High Pressures.