

Abstract Submitted
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Sensitivity of atomic wavefunctions and probability densities to confinement parameters PRANAWA C. DESHMUKH, Professor, HARI R. VARMA, Research Associate — Studies of confined atoms have attracted considerable attention in recent years [1, 2]. We have studied the sensitivity of atomic wavefunctions and probability densities to confinement parameters using the Dirac-Fock self-consistent field method. The confinement potential is modelled as an annular attractive potential of a certain radius, width and depth which we have varied parametrically to examine dependence of atomic wavefunctions on these parameters. We present in this work studies on the dependence of the wavefunctions of @Ca and the corresponding probability distribution. We find that all but the outermost 4s wavefunctions are relatively insensitive to the cage parameters but the 4s wavefunction is sensitive to both the inner radius and the depth of the potential. References: 1.V. K. Dolmatov, A. S. Baltenkov, J. –P. Connerade and S. T. Manson Rad. Phys. and Chem. 70 417 (2004) 2.M. E. Madjet, Himadri S. Chakaraborty and S. T. Manson Phys. Rev. Lett. 99 243003 (2007) 3.I. P. Grant Springer Series of Atomic, Optical and Plasma Physics (Springer –Verlag, New York 2006)

Pranawa C. Deshmukh
Professor

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