

Spectral Properties of Endohedrally Confined Hydrogen Atom and Hydrogen-Like Ions Obtained by Using B-Spline Basis Set

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Abstract: A B-spline method has been used to calculate the electron structure of endohedrally confined hydrogen-like atoms. The boundary conditions were conveniently satisfied with such the method. The evolution of the energy spectrum, as function of the depth of the confining well, exhibits a "mirror collapse". Ions with higher ionicity have more "collapse lines", the energies change more sharply at "collapse points", and the oscillator strengths change more violently with the depth of the confining well.

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Key words: B-spline, endohedrally, mirror collapse, oscillator strength

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