

A New Pseudospectral Method for Calculations of Hydrogen Atom in Arbitrary External Fields

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Abstract: A new pseudospectral method was introduced to calculate wavefunctions and energy levels of hydrogen atom in arbitrary potential. Some results of hydrogen atom in uniform magnetic fields were presented, high accuracy of results was obtained with simple calculations, and our calculations show very fast convergence. It suggests a new method for calculations of hydrogen atom in external fields.

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Key words: pseudospectral, magnetic fields, hydrogen

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