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Extended Wronskian Determinant Approach and Iterative Solutions of One-Dimensional Dirac Equation

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Abstract: An approximation method, namely, the Extended Wronskian Determinant Approach, is suggested to study the one-dimensional Dirac equation. An integral equation, which can be solved by iterative procedure to find the wave functions, is established. We employ this approach to study the one-dimensional Dirac equation with one-well potential, and give the energy levels and wave functions up to the first order iterative approximation. For double-well potential, the energy levels up to the first order approximation are given.

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Key words: extended Wronskian determinant approach, iteration method, double-well potential

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