

Calculating the Relativistic Wave Functions of 1^1S_0 and 1^3S_1 Positronium

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Abstract: Based on the relativistic Bethe-Salpeter (BS) equation, the positronium wavefunctions in Euclidean momentum space are obtained. Meanwhile the energy levels of positronium ground states 1^1S_0 and 1^3S_1 are fitted to be 6.7934 eV and 6.7929 eV respectively, which qualitatively agree with the previous theoretical values. It is shown that the BS theory is valid and reliable to treat positronium.

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Key words: positronium, Bethe-Salpeter equation

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