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Lorentz-covariant spinor wave packet

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We propose a new formulation of manifestly Lorentz-covariant spinor wave-packet basis. The conventional definition of the spinor wave packet is problematic in the sense that it suffers from mixing with other wave packets under Lorentz transformations. Our formulation evades this difficulty of mixing. This wave packet forms a complete set that can expand a free spinor field in a Lorentz covariant manner. In addition, we present a Lorentz-invariant expression of zero-point energy. The reference is arXiv:2307.05932 [hep-th].

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