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Neutrinoless Double Beta Decay Amplitude of $\pi^- \rightarrow \pi^+ e e$ from Infinite-volume Reconstruction Method.

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Using the infinite volume reconstruction method, we present a lattice QCD calculation of neutrinoless double beta decay $\pi^- \rightarrow \pi^+ e e$ with only exponentially suppressed finite volume effects. We compare these results with the conventional QED_L method. Our calculation can provide the low-energy constants for chiral perturbation theory. Besides, combining with our previous study on $\pi^- \pi^- \rightarrow e e$ decay, these results can provide us a better understanding on the double beta decay in the pion sector.

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