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## Two-pion scattering amplitude from Bethe-Salpeter wave function at the interaction boundary

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We observe that the ratio of the on-shell scattering amplitude to the Bethe-Salpeter (BS) wave function outside the interaction range is almost independent of time in our quenched calculation of the  $I=2$  two-pion scattering with almost zero momentum. In order to discuss the time independence, we present a relation between the two-pion scattering amplitude and the surface term of the BS wave function at the boundary of the interaction range. Using the relation and some assumptions, we show that the ratio is independent of time if the BS wave function in early time is given by some scattering states with almost zero momentum.

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