Unitarity constraint on three-to-three scattering amplitude

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Parameterizing the two-body scattering amplitude by an isobar in each partial wave, we are able to express the three-body scattering amplitude in terms of the isobar propagator and isobar-spectator scattering amplitude in terms of Bethe-Salpeter equation. Analytic properties of all building blocks are determined exactly, imposing three-body unitarity. Subsequently dispersion relations are used to determine explicit form of the three-to-three scattering amplitude.

Subsequent application towards the determination of the finite-volume energy spectrum will be presented at the end of the talk.

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