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Complete Minimal Form Factors for Irrelevant Deformations of Integrable Quantum Field Theory

I will introduce a method to compute the minimal form factors of diagonal integrable field theories perturbed by generalized $T\bar{T}$-perturbations that is going to appear in the next few months in a new paper with O. Castro-Alvaredo and S. Negro. Building on our previous results, these MFFs are constructed in such a way as to not allow for any free parameters, an issue that plagued previous solutions. The MFFs are derived from a generalization of the standard integral representation which has been used since the birth of the form factor bootstrap program. Their asymptotics is characterized by exponential decay at large rapidities. By computing higher particle form factors we find that any natural higher particle solutions involve the cancellation of parts of the newly found MFF. We conclude that the assumption that the form factor equations, particularly the kinematic residue equation, remain unchanged in the presence of $T\bar{T}$-perturbations, is too strong. There is a tradeoff between having MFFs satisfying desirable analyticity and asymptotic properties and finding analytic solutions to the form factor equations, which is likely solved by non-trivial changes to the form factor equations, especially those where locality or semi-locality of fields are essential assumptions.

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