

# Soft Off-Shell Recursion Relations for Pions

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In recent years modern amplitude methods have been successfully applied to so-called exceptional scalar effective field theories, chief among them the non-linear sigma model (NLSM) describing the dynamics of pions. A hallmark feature of NLSM amplitudes is their vanishing soft behavior (Adler zero) which was crucial for the formulation of on-shell recursion relations at tree-level.

In this contribution we present novel off-shell recursion relations valid for tree-level amplitudes and planar loop-integrands. Still leveraging the Adler zero as a guiding principle, we formulate a Berends-Giele-type recursion for NLSM amplitudes and integrands based on a single effective cubic vertex.

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