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Type: **Parallel-Goldstone Boson**

NNLO Positivity Bounds on Chiral Perturbation Theory for a General Number of Flavours

We present positivity bounds, derived from the principles of analyticity, unitarity and crossing symmetry, that constrain the low-energy constants of chiral perturbation theory.

Bounds are produced for 2, 3 or more flavours with equal meson masses, up to and including next-to-next-to-leading order, using the second and higher derivatives of the amplitude. We enhance the bounds by using the most general isospin combinations possible (or higher-flavour counterparts thereof) and by analytically integrating the low-energy range of the amplitude. In addition, we present a powerful and general mathematical framework for efficiently managing large numbers of positivity bounds.

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