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Three-pion scattering in the Chiral Perturbation Theory

Within the framework of the massive $O(N)$ nonlinear sigma model extended to the next-to-leading order in the chiral counting (for $N = 3$ corresponding to the two(-quark)-flavor Chiral Perturbation Theory), we calculate the relativistic six-pion scattering amplitude at low energy up to and including terms $\mathcal{O}(p^4)$. Results for the pion mass, decay constant and the four-pion amplitude in the case of N (meson) flavors at $\mathcal{O}(p^4)$ are also presented.

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