

# Pion-nucleon scattering: from chiral perturbation theory to Roy-Steiner equations

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## Collaboration

## Abstract content

Ever since Weinberg's seminal predictions of the pion-nucleon scattering amplitudes at threshold, this process has been of central interest for the study of chiral dynamics involving nucleons. The scattering lengths or the pion-nucleon sigma-term are fundamental quantities characterizing the explicit breaking of chiral symmetry by means of the light quark masses. On the other hand, pion-nucleon dynamics also strongly affects the long-range part of nucleon-nucleon potentials, and hence has a far-reaching impact on nuclear physics. I will discuss the fruitful combination of dispersion-theoretical methods, in particular in the form of Roy-Steiner equations, with chiral dynamics to determine pion-nucleon scattering amplitudes at low energies with high precision.

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