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The nucleon axial form factor in chiral perturbation theory

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The nucleon axial form factor is not only a fundamental property for the understanding of hadron structure but also a key ingredient of neutrino-nucleon cross sections, whose precise knowledge is required for the analysis of neutrino oscillations. We have calculated this form factor at low momentum transfers in Baryon Chiral Effective Theory, using the extended on mass shell renormalisation scheme, and including the Delta(1232) as an explicit degree of freedom. To assess the convergence of the perturbative expansion and estimate truncation errors, the study is performed at leading and next to leading one-loop orders. We fit recent lattice QCD results to determine the unknown low energy constants of the theory and extract the axial charge and radius.

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