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Systematic errors in extracting nucleon properties from lattice QCD

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Form factors of the nucleon have been extracted from experiment with high precision. However, lattice calculations have failed so far to reproduce the observed dependence of form factors on the momentum transfer. We have embarked on a program to thoroughly investigate systematic effects in lattice calculation of the required three-point correlation functions. In this talk we focus on the possible contamination from higher excited states. We present a new method which is designed to suppress excited state contributions and test it effectiveness for several baryonic matrix elements, different lattice sizes and pion masses.

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talk

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