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Baryon resonances coupled to Pion-Nucleon states in lattice QCD

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In recent years the study of two particle systems on the lattice has led to excellent results in the meson sector of the QCD spectrum, however baryon resonances remain mostly unexplored.

We present an initial study of pion-nucleon systems as decay product of baryon resonances in different channels. The final goal is to extract the resonance parameters from the correlation functions of multi-particle interpolators. All the Wick contributions have to be explicitly evaluated and the consequences of broken symmetries in moving frames are taken into account. We discuss the theoretical setup together with some preliminary results of our trial simulations for $nf=2$ mass degenerate light quarks.

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