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Chiral symmetry and the Roper resonance

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The origin of the low-lying nature of the Roper resonance has been the subject of significant interest for many years, including several investigations using lattice QCD. It has been claimed that chiral symmetry plays an important role in our understanding of this resonance. We present results from our systematic examination of the potential role of chiral symmetry in the low-lying nucleon spectrum through the direct comparison of the clover and overlap fermion actions. After a brief summary of the background motivation, we specify the computational details of the study and outline our comparison methodologies. We do not find any strong evidence supporting the claim that chiral symmetry plays a significant role in understanding the Roper resonance on the lattice.

Primary author: VIRGILI (*), Adam (University of Adelaide)

Co-authors: KAMLEH, Waseem; LEINWEBER, Derek

Presenter: VIRGILI (*), Adam (University of Adelaide)

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