Contribution ID: **222** Type: **Poster**

Towards extracting the timelike pion form factor on CLS 2-flavour ensembles

Tuesday, 26 July 2016 19:00 (1 hour)

Results are presented from an ongoing study of the ρ resonance. We use the LapH-smearing approach in order to create correlator matrices involving ρ and $\pi\pi$ interpolators. The study is done in a centre-of-mass frame and several moving frames. We are able to extract effective-energy levels by solving the GEVP of those correlator matrices. The initial exploratory study is being done on a CLS 2-flavour lattice with a pion mass of $451\ \mathrm{MeV}$ using $\mathcal{O}(a)$ improved Wilson fermions. One aim of this work is to extract the timelike pion form factor after applying the Lüscher formalism. We also have all the ingredients ready which allow us to integrate this study with the existing Mainz programme for the calculation of the hadronic vacuum polarization contribution to the muon $g-2$. We plan to extend our study to lower pion masses and larger lattices in the future, including ensembles with $2+1$ flavours.

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Session Classification: Poster

Track Classification: Hadron Spectroscopy and Interactions