LATTICE 21

JULY 26-30 2021, ZOOM/GATHER@MIT

Contribution ID: **414**

Type: **Oral presentation**

Precise $I = 3/2$ and $I = 0$ meson-baryon scattering amplitudes from an $N_\mathrm{f} = 2 + 1$ CLS ensemble at $m_\pi = 200\mathrm{MeV}$

Wednesday, 28 July 2021 21:00 (15 minutes)

A high-statistics computation of meson-baryon scattering amplitudes is presented on a single ensemble from the Coordinated Lattice Simulations (CLS) consortium with $m_\pi = 200\mathrm{MeV}$ and $N_\mathrm{f} = 2 + 1$ dynamical fermions. The finite-volume approach is employed to determine the lowest few partial waves from ground and excited state energies computed by solving the Generalized Eigenvalue Problem. This analysis requires matrices of correlation functions between single- and two-hadron interpolating operators which are projected onto definite spatial momenta and finite-volume irreducible representations using the stochastic LapH approach to quark propagation. Results are presented for the $I = 3/2$ p-wave amplitude which includes the $\Delta(1232)$ resonance and the $I = 0$ s-wave amplitude with unit strangeness relevant for the $\Lambda(1405)$.

Primary authors: MORNINGSTAR, Colin (Carnegie Mellon University); BULAVA, John (DESY-Zeuthen); HOERZ, Ben; HANLON, Andrew (Helmholtz-Institut Mainz, JGU); WALKER-LOUD, Andre (LBNL); NICHOLSON, Amy; MOHLER, Daniel (Helmholtz-Institut Mainz)

Presenters: MORNINGSTAR, Colin (Carnegie Mellon University); MORNINGSTAR, Colin (Carnegie Mellon University)

Session Classification: Hadron Spectroscopy and Interactions

Track Classification: Hadron Spectroscopy and Interactions