



Contribution ID: 122

Type: **Talk**

Mixing of light meson and charmonium flavor singlets in $N_f = 3 + 1$ QCD

Monday 3 November 2025 15:50 (20 minutes)

We investigate the mixing between S-wave flavor-singlet light meson and charmonium operators in two $N_f = 3 + 1$ ensembles at different pion masses ($m_\pi \approx 420, 800$ MeV). By solving a GEVP we find both types of operators have non-zero overlaps with all states we look at. We also compare the resulting spectrum with the one coming from separate GEVPs including either only light meson or only charmonium operators and quantify the effects of the mixing on the hyperfine splitting. The largest effect we observe is a decrease of the η_c mass by 39(24) MeV. Finally, we show preliminary results of the mixing between both types of operators with glueball ones as a first step to further extend our operator basis.

Parallel Session (for talks only)

Hadronic and nuclear spectrum and interactions

Authors: KNECHTLI, Francesco Giacomo (Bergische Universitaet Wuppertal (DE)); FINKENRATH, Jacob Friedrich; URREA NINO, Juan Andres (Trinity College Dublin); PEARDON, Mike; KORZEC, Tomasz; Dr HÖLL-WIESER, Roman (University of Wuppertal)

Presenter: URREA NINO, Juan Andres (Trinity College Dublin)

Session Classification: Hadronic and nuclear spectrum and interactions