

Isoscalar scattering: flavor tagging of decays

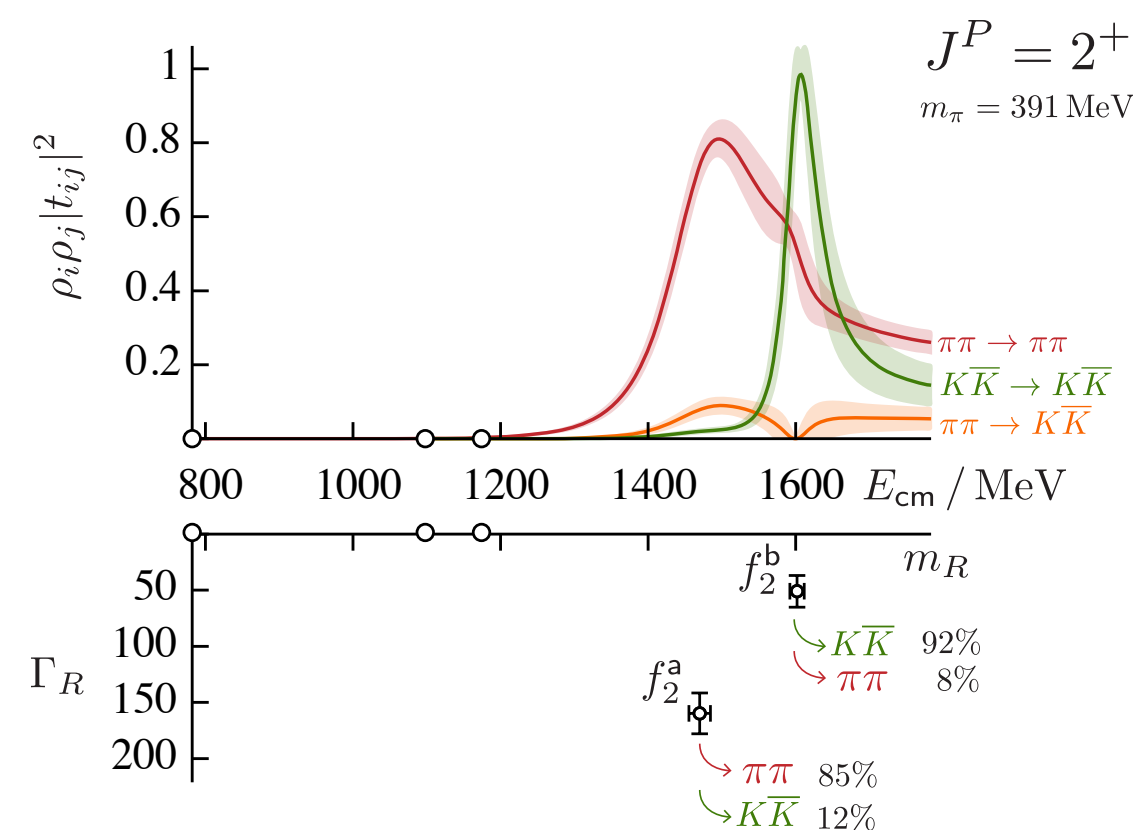
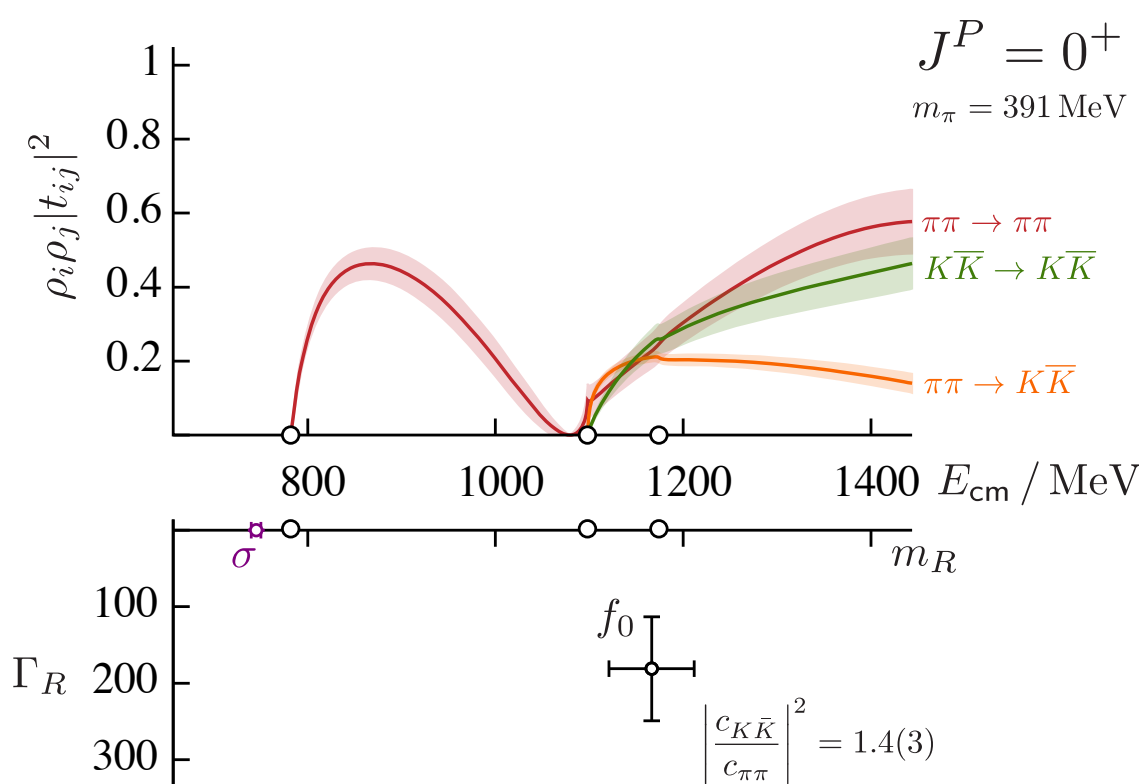
Objectives

- Searches for exotic hadrons a major focus of the \$350M upgrade of JLab and the new Hall D
- Composition of lightest hadrons with scalar quantum numbers a long mystery
- Use new LQCD methods to establish nature of scalar resonances

Impact

- Established strong theory and analytical/numerical support for spectroscopy programs worldwide
- Demonstrates flavor tagging as a viable method of identifying compositions of states observed experiment

Accomplishments



- First LQCD study of coupled isoscalar S&D-wave scattering
- Found analogues of experimental σ and f_0 states manifesting as dip in $\pi\pi$ cross sections
- Extracted resonance parameters and established branching fractions indicating flavor content of spin-2 states
- Published R.Briceno, J.Dudek, R.Edwards, W.Wilson, Phys.Rev.D97(2018) 054513