



Contribution ID: 128

Type: **not specified**

Hadron Spectroscopy and Finite Energy Sum Rules

Tuesday 4 February 2025 10:25 (25 minutes)

Hadron spectroscopy plays an important role in understanding the strong interactions, from conventional hadrons to exotic states like hybrids with explicit gluonic components. Finite-Energy Sum Rules (FESR) link low-energy resonance dynamics with high-energy Regge behavior, providing a powerful theoretical framework to study these states. Building upon the JPAC's work on $\pi p \rightarrow \pi \eta p$ and COMPASS data on $\eta\pi$ production, we aim to extend the application of the FESR to this process.

Our approach simplifies the $2 \rightarrow 3$ scattering process into a tractable $2 \rightarrow 2$ reaction $f_2 + \pi \rightarrow \pi + \eta$, preserving the essential physics while reducing computational complexity. To support this methodology, we analyze fundamental reactions such as $\eta\eta \rightarrow \eta\eta$, $\pi\pi \rightarrow \pi\pi$, and $\pi\eta \rightarrow \pi\eta$, establishing a foundation for exploring more intricate hadronic systems.

Primary author: HAMMOUD, Nadine (University of Barcelona, Faculty of Physics)

Presenter: HAMMOUD, Nadine (University of Barcelona, Faculty of Physics)