

Alessandro Pilloni

JLab

## Modelling XYZ States

The observation of the unexpected XYZ resonances has challenged the ordinary heavy quarkonium framework, and their microscopic nature remains an unsettled topic. We discuss how a thorough amplitude analysis can help in distinguishing the possible scenarios of a QCD state, virtual state, or a kinematical enhancement. We also show how the large prompt production cross-section of the  $X(3872)$ , together with the comparison with light nuclei production data, disfavors a loosely-bound molecule interpretation, and calls for a new interpretation for the exotic hadron resonances.