Contribution ID: **40** Type: **Parallel**

Three-body approach to T_{cc}^{+} from lattice QCD

Thursday, 25 June 2026 15:45 (20 minutes)

I will discuss recent progress in applying a general theoretical framework to the study of three-body resonances in lattice QCD. As a concrete example, I will focus on the doubly-charmed tetraquark $T_{cc}^{+}(3875)$ emerging as a state in elastic $DD\pi$ scattering amplitude. After a short overview of the tetraqaurk physics and the finite- and infinite-volume field-theory formalism, I will describe results of the first three-body lattice QCD computation* of this state at pion mass $m_\pi \approx 280$ MeV. Our approach incorporates both DD^* and $DD\pi$ dynamics, including one-pion exchanges, and marks an important next step toward determining the properties of near-threshold three-body resonances directly from QCD.

*–perhaps still ongoing at the time of the conference.

Collaboration

Primary authors: BAIAO RAPOSO, Andre (Ruhr University Bochum); STUMP, Andreas (Humboldt University of Berlin); MORNINGSTAR, Colin (Carnegie Mellon University); ROMERO-LOPEZ, Fernando (University of Bern); ALHARAZIN, Herzallah (Ruhr University Bochum); GREEN, Jeremy (DESY); BULAVA, John (Ruhr University Bochum); SALG, Miguel (University of Bern); DAWID, Sebastian (Indiana University Bloomington); SHARPE, Stephen (University of Washington)

Presenter: DAWID, Sebastian (Indiana University Bloomington)

Session Classification: Parallel session A1

Track Classification: Heavy Flavour (production, spectroscopy)