Contribution ID: **162** Type: **Talk**

Electromagnetic form factors and structure of the T_{bb} tetraquark

Wednesday 5 November 2025 10:50 (20 minutes)

We present the first lattice QCD determination of the electromagnetic form factors of the exotic tetraquark T_{bb} ($bb\bar{u}\bar{d}$) with quantum numbers $I(J^P) = 0(1^+)$. The extracted form factors encode information about its internal structure, including the charge distribution and the magnetic dipole moments, determined separately for the light and heavy quarks. Our results provide evidence in favor of it being a bound state consisting of a compact heavy diquark $[bb]$ in a color-antitriplet with spin one, and a light antidiquark $[\bar{u}\bar{d}]$ in a color-triplet with spin zero. The charge radius of T_{bb} is found to be significantly smaller than the combined charge radii of B and B^* mesons. These two comprise the lowest-lying threshold BB^* in the channel we are considering, and their electric charge form factors are also determined. The computations were done on a single CLS ensemble with $N_f = 2 + 1$ dynamic quarks and a spacing of approximately $a \approx 0.064$ fm at the pion mass $m_\pi \approx 290$ MeV.

Parallel Session (for talks only)

Hadronic and nuclear spectrum and interactions

Authors: VUJMILOVIC, Ivan; COLLINS, Sara; LESKOVEC, Luka (Jozef Stefan Institute); PRELOVSEK KOMELJ, Sasa

Presenter: VUJMILOVIC, Ivan

Session Classification: Hadronic and nuclear spectrum and interactions