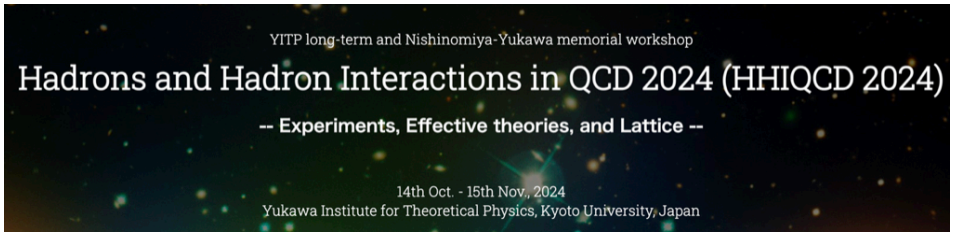

Contribution ID: **133** Type: **1st and 2nd weeks (Hadron structure and interactions)**

Lectures on Lattice QCD study of Hadron interactions

Friday, October 18, 2024 11:00 AM (1h 30m)

QCD governs the dynamics of quarks and gluons, and ultimately properties of hadrons and nuclei as well as nuclear astrophysical phenomena such as binary neutron star merges. Lattice QCD is the unique method which can solve QCD in a first-principle manner, and it can make predictions (or postdictions) for basic hadronic quantities.
The calculation of hadron interactions, however, is non-trivial, since
lattice QCD is formulated on a finite volume with Euclidean time. There is also a challenge for reliable calculations due to the infamous (bad) signal/noise ratio problem in simulations. In this lecture, we review the two major methods currently available in lattice QCD, Luscher's finite volume method and the HAL QCD method. The importance of controlling systematic errors is emphasized and critical review for the past calculations as well as recent progresses are presented.

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Session Classification: Lecture