

XVth Quark Confinement and the Hadron Spectrum



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QCD data-driven holographic modeling

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Machine learning technologies has gained a great advance to affect various fields of research in physics, and nonperturbative QCD is not an exception. Here in this talk I will rephrase the AdS/CFT correspondence by a deep learning architecture, and demonstrate the emergence of the gravity geometry by using QCD data, thus establishing a possible duality between QCD and a gravitational theory. This solves the inverse problem of the AdS/CFT, in other words, it is a QFT-driven holographic modeling. The lattice data of the chiral condensate is used to train a neural network to make a bulk gravity model, and the model can predict Wilson loop expectation values, to be well compared with the lattice Wilson loop results.

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