Contribution ID: 2 Type: not specified

Bottom-up holographic approach to QCD

Tuesday, 8 September 2015 12:00 (30 minutes)

One of the most known result of the string theory consists in the idea that some strongly coupled gauge theories may have a dual description in terms of a higher dimensional weakly coupled gravitational theory — the so-called AdS/CFT correspondence or gauge/gravity correspondence. The attempts to apply this idea to the real QCD are often referred to as "holographic QCD" or "AdS/QCD approach". One of directions in this field is to start from the real QCD and guess a tentative dual higher dimensional weakly coupled field model following the principles of gauge/gravity correspondence. The ensuing phenomenology can be then developed and compared with experimental data and with various theoretical results. Such a bottom-up holographic approach turned out to be unexpectedly successful in many cases. In the given talk, we make a short review of the bottom-up holographic approach to QCD and some of its applications.

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Session Classification: Session 2