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# Quantum Corrected AdS/CFT Correspondence at Low Temperatures and Its Applications

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A large class of black holes have a near-horizon AdS_2 throat region. Using the recent progress on the nearly AdS_2 Jackiw-Teitelboim gravity theory, we can study the quantum gravity effects of the near-horizon AdS_2 region and then lift them to higher-dimensional black holes. It turns out these apparently trivial effects of quantum gravity can play crucial roles in the near-extremal AdS/CFT correspondence. In this talk, we will discuss the mechanism of AdS_2 quantum effects embedded in higher-dimensional AdS spaces and the quantum-corrected AdS/CFT correspondence at low temperatures. As applications, we discuss how this new approach resolves various problems, including quantum-corrected holographic strange metal and quantum-corrected fluid/gravity correspondence. Most importantly, quantum gravity effects provide new insights into the formidable long-standing Yang-Mills confinement problem. This talk is based on my recent and upcoming papers with collaborators.

**Presenter(s) :** NIAN, Jun (University of Chinese Academy of Sciences)

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