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Holographic RG flows from four-dimensional N=6 and N=2 gauged supergravities

In quantum field theories, interactions between particles can be studied by using Feynman diagrams. Calculating Feynman diagrams in strong interaction between particles results in infinity values. This problem can be solved by using a process of renormalization that is the method of removing an infinity. Invariances under scaling form a group called renormalization group. Some renormalization group flows (RG flows) describe deformations of a conformal field theory (CFT) to another conformal or non-conformal theories, resulting in the deformations of a UV conformal fix point to another fixed point or a non-conformal phase in the IR. In this work, we study holographic RG flows from N=6 gauged supergravity with SO(6) gauge group. The solutions describe RG flows from the N=6 CFT to non-conformal field theory in three dimensions driven by mass deformations by the so-called AdS/CFT correspondence or AdS/CFT holography. We also discuss RG flows from N=2 gauged supergravity obtained from a truncation of N=8 supergravity.

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