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Partial deconfinement

Monday, 24 June 2019 16:15 (45 minutes)

We discuss a “partially deconfined phase” in $SU(N)$ gauge theories. This phase is in between the confined and deconfined phases and is defined such that $SU(M)$ in $SU(N)$ ($M < N$) is deconfined and the rest of degrees of freedom are confined. We investigate some examples and find that in all the examples, the transition from the partially deconfined phase to completely deconfined phase has the same structure as the Gross-Witten Wadia transition. We also discuss an interesting relation between the partial deconfinement and black holes in string theory. When the partially deconfined phase is unstable, it corresponds to the phase with a small Schwarzschild black hole in string theory through the gauge/gravity duality.

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