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String Theory in Greater Paris

Rencontres Théoriciennes

"Supergravité, théorie des cordes et théorie M"

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Sergio Benvenuti

SISSA

Monopole superpotentials in 2+1 D : dualities and UV completions

Gauge theories in three dimensions can admit monopole operators in the potential. Starting from an interacting gauge theory without monopole potential, if the monopole term is relevant, there is an RG flow to the monopole-deformed theory TM. Focusing on U(Nc) SQCD with Nf flavors and N = 2 supersymmetry, we show that even when the monopole potential is irrelevant, the monopole-modified theory TM can exist and enjoy Seiberg-like dualities. We provide a renormalizable, three-dimensional, UV completion of TM and discuss its electric-magnetic dual description. As an application, we find the N=2 3D gauge theory corresponding to a system of D3-D5-NS5 branes containing a stack of coincident NS5 branes broken in half by a D5 brane. This Abelian gauge theory is a quiver containing many monopole terms in the superpotential and is mirror-dual of a standard gauge theory.

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