

3d Coulomb Branch and Magnetic Quivers

Three-dimensional $N=4$ theories admit a rich moduli space of vacua, with two distinct hyper-Kähler (HK) subspaces. While the Higgs branch is long understood as a HK quotient (1980s), the Coulomb branch (CB) has proven a much tougher nut to crack (2010s). It turns out it is a new HK construction in its own right. Understanding CBs is still an active area of research, and we will review the constant progress which was made over the last few years. We will focus on the Hilbert series approach to the CB - the monopole formula - while also mentioning other approaches. CBs have been applied successfully to solve HK problems in both physics and mathematics, mostly under the guise of 'magnetic quivers'. Using examples we will introduce the notion of magnetic quiver, hoping to convey its power.

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