



Department of
Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

Monopole Operators in 3d $N=2$ Chern-Simons matter theories

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(Duration and Location are subject to irreducible jitter)

We will discuss monopole operators in $U(N_c)$ Chern-Simons-matter theories in $d=3$. We mention an apparent problem in the matching of such operators in dualities between non-supersymmetric theories, and suggest a possible resolution. A similar apparent problem exists in the mapping of chiral monopole operators in theories with $N=2$ supersymmetry. We show that in many theories the lowest naive chiral monopole operator is actually not chiral, and we find the lowest monopole operator that is actually chiral in these theories. It turns out that there are several different forms of this operator, depending on the number of colors, the number of flavours, and the Chern-Simons level. Since we use the supersymmetric index to find the lowest chiral monopoles, our results for these monopoles are guaranteed to be invariant under the dualities in supersymmetric theories. The theories we discuss are believed to be dual in the 't Hooft large N_c limit to classical high-spin gravity theories. We argue that these theories (supersymmetric or not) should not have classical solutions charged under the $U(1)$ gauge field in the high-spin multiplet

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