

Categorical structure of Coulomb branches

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Coulomb branches are certain moduli spaces arising in supersymmetric field theory. They include as special cases many spaces of independent interest in geometry and representation theory. In the four-dimensional case, their coordinate rings can be categorified (lifted) to tensor categories that carry a lot of structure. In these talks we will define and explore the structure of such categorified Coulomb branches. The goal is to explain and illustrate with specific examples the ingredients which go into constructing and studying these categories. This includes some basic geometry of the affine Grassmannian, the theory of perverse coherent sheaves, t-structures related to Koszul duality and perhaps some related topics such as renormalized r -matrices, cluster algebras and Hall algebras (time and interest permitting).