1132-16-67 **Ben Webster*** (ben.webster@uwaterloo.ca), Pure Mathematics, University of Waterloo, 200 University Avenue West, Waterloo, Ontario N2L 3G1, Canada. *Representation theory and the Coulomb branch.*

For many years, my collaborators and I tried to understand the Coulomb branches of certain field theories from physics and failed miserably. Luckily, recent work of Braverman-Finkelberg-Nakajima gives a mathematical construction of these spaces, and algebras quantizing them. I'll discuss an approach to the representation theory of these algebras (building on joint work with Braden-Licata-Proudfoot and many other authors). Applications include a version of theKoszul duality between the Higgs and Coulomb branches of such a theory, a new perspective on category O for Cherednik algebras, and a new understanding of coherent sheaves on Coulomb branches. (Received July 11, 2017)