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Representation theory of symplectic singularities.

Since they were introduced about 2 decades ago, symplectic singularities have shown themselves to be a remarkable branch of algebraic geometry. They are much nicer in many ways than arbitrary singularities, but still have a lot of interesting nooks and crannies.

I'll talk about these varieties from a representation theorist's perspective. This might sound like a strange direction, but remember, any interesting symplectic structure is likely to be the classical limit of an equally interesting non-commutative structure, whose representation theory we can study. While this field is still in its infancy, it includes a lot of well-known examples like universal enveloping algebras and Cherednik algebras, and has led a lot of interesting places, including to categorified knot invariants and a conjectured duality between pairs of symplectic singularities. I'll give a taste of these results and try to indicate some interesting future directions. (Received February 17, 2013)