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Perverse bundles and CM spaces

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Abstract

The Hilbert scheme of n points in the affine plane has a beautiful, elementary description in terms of matrices. One can interpret this elementary description in terms of the symplectic reduction of an affine space under an action of $GL(n)$, provided one imposes an open condition (stability) on the zero-level-set of the moment map before taking the quotient by $GL(n)$. I'll explain what happens when one *doesn't* impose that stability condition (one gets "perverse bundles" instead of collections of points); what one gets by reducing at a nonzero value of the moment map (a moduli space from noncommutative algebraic geometry); and how the story generalizes to the cotangent bundle of any curve. I'll also explain the spectral description of perverse bundles that one obtains via Fourier transform when the curve has genus 1.

This is a joint work with David Ben-Zvi.