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Linearizations of character varieties of curves: geometry and mirror symmetry

To a tamely-punctured algebraic curve with generic positive real weights, one can attach a character variety that can be identified with a multiplicative Nakajima variety of a certain shape. The linearization of this character variety is an ordinary Nakajima quiver variety, called a “hyperpolygon space” in certain instances. The weights, which are stability parameters (equivalently, levels sets of moment maps), produce a singular hyperkaehler variety when driven to zero. This variety at infinity is stratified in a particular way by “edge collapse”. Natural questions include the following: Can the singular hyperkaehler metric be written explicitly? Does this variety arise from a finite subgroup of a Lie group (in the sense of McKay)? Is the mirror of this variety well understood as, say, a Coulomb branch and what are its “branes” (in the sense of Kapustin-Witten)? I will comment on all of these, as part of joint work with each of Laura Schaposnik and Hartmut Weiss.