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Hamiltonian reduction along a pre-Poisson subvariety

Topological quantum field theories (TQFTs) serve to inspire many important constructions in geometry and representation theory. A concrete example of this inspiration comes from a paper of Moore and Tachikawa, where the authors conjecture the existence of a certain TQFT taking values in holomorphic symplectic varieties. Verifying this conjecture amounts to constructing a particular family of holomorphic symplectic varieties indexed by the natural numbers, the so-called *Moore–Tachikawa varieties*. Ginzburg and Kazhdan thereby prove Moore and Tachikawa's conjecture.

I will realize the Ginzburg–Kazhdan construction as an instance of "Hamiltonian reduction along a pre-Poisson subvariety", a procedure developed jointly with Maxence Mayrand. This reduction procedure also encompasses Marsden–Weinstein reduction, symplectic implosion, Mikami–Weinstein reduction, and hyperkähler slices, all of which I will explain if time permits.

This represents joint work with Maxence Mayrand.