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Symplectic reduction along a subvariety

In its most basic form, symplectic geometry is a mathematically rigorous framework for classical mechanics. Noether's perspective on conserved quantities thereby gives rise to quotient constructions in symplectic geometry. The most classical such construction is Marsden-Weinstein-Meyer reduction, while more modern variants include Ginzburg-Kazhdan reduction, Kostant-Whittaker reduction, Mikami-Weinstein reduction, symplectic cutting, and symplectic implosion.

I will provide a simultaneous generalization of the quotient constructions mentioned above. This generalization will be shown to have versions in the smooth, holomorphic, complex algebraic, and derived symplectic contexts. As a corollary, I will derive a concrete and Lie-theoretic construction of "universal" symplectic quotients.

This represents joint work with Maxence Mayrand.