CASEY BLACKER, George Mason University

Geometric and algebraic reduction of multisymplectic manifolds

A symplectic Hamiltonian manifold consists of a Lie group action on a symplectic manifold, together with the additional structure of a moment map, which encodes the group action in terms of the assignment of Hamiltonian vector fields. In special cases, the moment map determines a smooth submanifold to which the Lie group action restricts and the resulting quotient inherits the structure of symplectic manifold. In every case, it is possible to construct a reduced Poisson algebra that plays the role of the space of smooth functions on the reduced symplectic manifold.

In this talk, we will discuss an adaptation of these ideas to the multisymplectic setting. Specifically, we will exhibit a geometric reduction procedure for multisymplectic manifolds in the presence of a Hamiltonian action, an algebraic reduction procedure for the associated L-infinity algebras of classical observables, and a comparison of these two construction. This is joint work with Antonio Miti and Leonid Ryvkin.