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Philip J Morrison* (morrison@physics.utexas.edu). *Finite-dimensional reductions of infinite-dimensional Lie-Poisson brackets.*

The Lie-Poisson bracket associated with the group of canonical transformations (symplectomorphisms) has been known since 1980 to describe important field theories such as the Vlasov equation, the two-dimensional Euler equation for an ideal fluid, and many other physical systems. For purposes of computation it is desirable to produce semi-discrete projections in a structure preserving way. New ways to project onto finite-dimensional Poisson manifolds will be described, along with concomitant low degree-of-freedom dynamics. (Received September 16, 2019)