

Abstract Submitted  
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**Metriplectic Simulated Annealing** P.J. MORRISON, The University of Texas at Austin, G.R. FLIERL, MIT — Metriplectic dynamics [1,2] is a general form for dynamical systems that represent the first and second laws of thermodynamics, energy conservation and entropy production. Entropy production provides asymptotic stability to equilibrium states, which because of constraints need not be trivial. The formalism will be used to perform quasigeostrophic computations, akin to those of [3], for obtaining a variety of vortex states.

[1] P.J. Morrison, *Physica D* **18**, 410 (1986).

[2] A.M. Bloch, P.J. Morrison, and T.S. Ratiu, in *Recent Trends in Dynamical Systems* **35**, 371 (2013).

[3] G.R. Flierl and P.J. Morrison, *Physica D* **240**, 212 (2011).

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