Abstract Submitted
for the DFD14 Meeting of
The American Physical Society

On Gyroviscous Fluids[1] PHILIP J. MORRISON, MANASVI LINGAM, Institute for Fusion Studies, The University of Texas at Austin — Fluid models involving gyroviscous effects, whereby momentum is transported while conserving energy, are of interest for plasma, astrophysical, and condensed matter systems. Such fluids can be viewed as possessing intrinsic angular momentum. We present a systematic method for constructing such models from an action principle formalism [1,2] that allows for an unambiguous means for introducing these effects, instead of ad-hoc phenomenological prescriptions. We also apply Noether's theorem to obtain the appropriate conserved quantities for these models.

[1] M. Lingam and P.J. Morrison, "The action principle for generalized fluid motion including gyroviscosity" (to be submitted).
[2] P.J. Morrison, M. Lingam and R. Acevedo, Phys. Plasmas 21, 082102 (2014).

[1]Supported by U.S. Department of Energy Contract No. DE-FG05-80ET-53088

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Date submitted: 01 Aug 2014 Electronic form version 1.4