Variational principles for dissipative waves[1] I. Y. DODIN, D. E. RUIZ, Princeton University, PPPL — Variational methods are a powerful tool in plasma theory. However, their applications are typically restricted to conservative systems or require doubling of variables, which often contradicts the purpose of the variational approach altogether. We show that these restrictions can be relaxed for some classes of dynamical systems that are of practical interest in plasma physics, particularly including dissipative plasma waves. Applications will be discussed to calculating dispersion relations and modulational dynamics of individual plasma waves and wave ensembles.

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