

Abstract Submitted
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Polarization and magnetization effects in reduced plasma dynamics¹ ALAIN BRIZARD, Saint Michael's College — The concepts of polarization density and current, normally associated with the presence of a fluctuating electric field in a strong magnetic field, play important roles in the description of reduced plasma kinetic and fluid models. The addition of fluctuating magnetic fields introduce covariant generalizations of polarization effects as well as introduce the concept of magnetization current in a self-consistent way. In the present work, polarization and magnetization effects are investigated within the variational formulations of several self-consistent reduced kinetic and fluid plasma models: oscillation-center and gyrokinetic plasma kinetic models and finite- β electromagnetic drift-fluid models.

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