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**Michael Sever\*** ([sever@math.huji.ac.il](mailto:sever@math.huji.ac.il)), Department of Mathematics, The Hebrew University, Givat Ram, Jerusalem, Israel. *Nonrelativistic Euler-Maxwell systems.*

Construction of nonrelativistic Euler-Maxwell systems, candidates for MHD models, is reconsidered using previous results on characterization of Galilean symmetric approximations of Maxwell's equations. In the context of a single fluid, the results are limited and disappointing. The Lundquist system, including the seemingly heroic expression for the electric field, all but necessarily results from the assumptions of Galilean symmetry and nonnegligible magnetic force on the fluid. However, the construction reveals an unexpected restriction on the applicability of the Lundquist model. At the expense of increased complexity, the difficulty is removed by consideration of a plasma model, including two fluids with charge per unit mass of opposite sign. (Received August 01, 2011)