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Quasineutral limit of an Euler-Poisson system arising from plasma physics. (English)

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Summary: We study the quasineutral limit of an Euler-Poisson system arising from plasma physics i.e. the limit when the Debye length tends to 0 of a nonlinear hyperbolic system coupled with a nonlinear elliptic equation. The proof uses pseudodifferential energy estimates techniques, in order to justify classical limits in small time, for strong solutions.

MSC:

82D10 Statistical mechanics of plasmas

76X05 Ionized gas flow in electromagnetic fields; plasmic flow

35Q35 PDEs in connection with fluid mechanics

Cited in **1** Review
Cited in **103** Documents

Keywords:

one-dimensional isothermal plasma; quasineutral limit; Euler-Poisson system; Debye length; nonlinear hyperbolic system; pseudodifferential energy estimates

Full Text: [DOI](#)

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