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Ion-acoustic double-layers in a magnetized plasma with nonthermal electrons

Physics of Plasmas **20**, 112301 (2013); <https://doi.org/10.1063/1.4829019>L. A. Rios^{1, a)} and R. M. O. Galvão^{1,2}[View Affiliations](#)[View Contributors](#)

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ABSTRACT

In the present work we investigate the existence of obliquely propagating ion-acoustic double layers in magnetized two-electron plasmas. The fluid model is used to describe the ion dynamics, and the hot electron population is modeled via a κ distribution function, which has been proved to be appropriate for modeling non-Maxwellian plasmas. A quasineutral condition is assumed to investigate these nonlinear structures, which leads to the formation of double-layers propagating with slow ion-acoustic velocity. The problem is investigated numerically, and the influence of parameters such as nonthermality is discussed.

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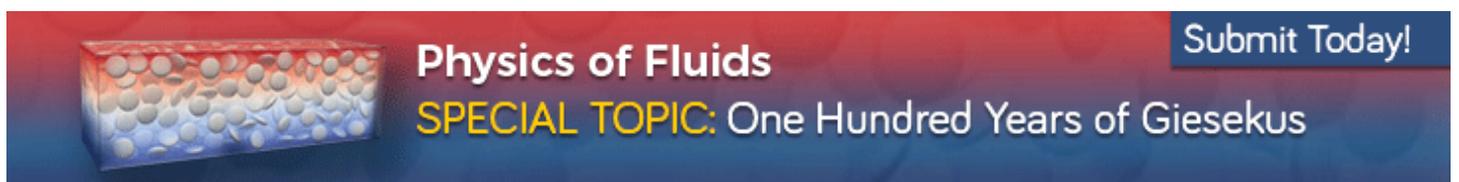
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