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Dressed ion- acoustic soliton in a plasma with electrons featuring Tsallis distribution

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Abstract

Ion- acoustic dressed solitons are addressed in a three component electron-positron-ion plasma with nonextensive electrons. The approach based on the expansion of the Sagdeev potential up to the fourth-order is used. This approach yields the same dressed ion- acoustic soliton solution given by the renormalization procedure in the reductive perturbation method. The dressed soliton is then split into two contributions, the core and cloud structures, and compared to the Korteweg-de Vries (K- dV) ion- acoustic soliton solution.

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