Speed and Shape of Solitary Waves in Two-electron Plasmas with Relativistic Warm Ions

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Large amplitude solitary waves are investigated in a relativistic plasma with finite ion-temperature and two temperature isothermal electrons. Sagdeev's pseudopotential is determined in terms of the ion speed u. It is found that there exists a critical value of u_0, the value of u at which $(u')^2 = 0$, beyond which the solitary waves cease to exists. The critical value also depends on parameters like the soliton velocity v, the fraction of the cold electron concentration μ, or the ratio of the cold and hot electron temperatures β.

Key words: Solitary Wave; Pseudopotential; Warm Ions.