

ABSTRACT

Compression and rarefaction leads the largely extended plasmas towards unstable anisotropic state. Free energy in such temperature anisotropy plasmas are the major sources to drive many micro instabilities. These excited instabilities in turn takes the plasma back towards nearly stable conditions. We study the left-hand polarized electron firehose instability driven by excessive parallel temperature. Unstable firehose instability is important to keep check on sudden rise in the parallel temperature in extended space plasmas. We model the anisotropic electrons with q non extensive distribution function. Based on Vlasov- Maxwell model, we quantify the impact of various initial conditions on the real oscillatory frequency and growth rate of firehose instability. We note a significant rise in the growth rate by increasing the parallel anisotropy, plasma beta, and non-extensivity (lowering q -values). Our findings are quite helpful for the better understanding of complex plasmas.