



Destabilizing effects of the suprathermal populations in the solar wind

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Suprathermal populations are ubiquitous in the solar wind, indicating plasma states out of thermal equilibrium, and an excess of free energy expected to enhance the kinetic instabilities. However, the existing Kappa models used to disclose the effects of these populations on the electromagnetic instabilities driven by the kinetic (temperature) anisotropy do not always confirm this expectation, but mainly show an inhibition of these instabilities by the suprathermals. The generally accepted representation of Kappa distributions in space plasma physics allows for two different alternatives, namely assuming the temperature either dependent or independent on the kappa index of the distribution. Here we aim to clarify the issue concerning which of the two possible choices and the related physical interpretation is the correct one.