



Suprathermal populations: from observations to realistic interpretation

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Suprathermal populations enhance the high-energy tails of the velocity distributions of particles in space plasmas. Standard Maxwellian models cannot describe the observed distributions, which are instead well reproduced by the Kappa power-laws. However, the family of Kappa distribution functions do not offer a unique representation of the suprathermals. Here we discuss the efforts made in the last decades to describe realistically these populations and, implicitly, their effects in the solar wind. A realistic interpretation is conditioned by a rigorous modelling in accord with the observations. In turn, the effects predicted for the same suprathermal populations must also be confirmed by the observations.