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**Non-Maxwellian distributions and their foundation on non-extensive statistical physics** J. JULIO E. HERRERA-VELAZQUEZ, Instituto de Ciencias Nucleares, UNAM — Although it is common to assume that velocity current distributions of plasma species are Maxwellian, since plasmas are usually not closed systems in equilibrium, this assumption is seldom fulfilled in practice. Both in laboratory and spacecraft observations, families of distribution functions usually include suprathermal particles, and are best parametrized by the so called $\kappa$ distributions, or variations of them. The purpose of this work is to discuss their theoretical foundations in the context of non-extensive statistical physics [1, 2], as well as some of their consequences, or lack of them, in other fundamental concepts, such as Deby shielding.

[1] C.Tsallis, *J. Statistical Physics*, **52**, 479 (1988).
[2] M. P. Leubner, *Astorphysics and Space Science*, **282**, 573 (2002).

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