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A Boltzmann equation approach to string thermodynamics

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Using interaction rates computed to second order in string perturbation theory, we pose a system of Boltzmann equations describing an ensemble of long open and closed strings in different regimes (which include high and low density of D-branes), for an arbitrary number of "effectively non-compact" directions, along which strings cannot wind. We find equilibrium distributions for all these systems and study their behaviour under fluctuations, which we use to estimate thermalization rates. We comment on the relevance of this scenario in early Universe cosmology.

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