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Since the Maxwell-Boltzmann statistical conceptual revolution of 1860-1870, two main paradigms have emerged as a guide for equilibration processes: Boltzmann's entropy growth principle on the one hand, Landau's damping by mixing on the other hand. These are fundamentally different mechanisms, coming in different settings and with different phenomenologies, which can sometimes reinforce each other. I will review progress in this area in the past 15 years, and the many problems which have emerged at the same time.

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