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**Close-to-equilibrium regularity for reaction-diffusion systems**

**Abstract:**

In this talk, I discuss the global existence of reaction-diffusion systems modelling chemical reactions. Due to the high order of nonlinearities, it is unclear if the local strong solution extends globally. I will focus on the class of complex balanced systems and close-to-equilibrium regime, i.e. the initial datum is sufficiently close to an equilibrium. First, the existence of a spectral is shown, then this is used to prove that the linear decay is dominating the nonlinear growths, which leads to global boundedness of solutions. Consequently, the solution is shown to converge exponentially to equilibrium in sup-norm.

**References**

- 1 Tang, Bao Quoc. "Close-to-equilibrium regularity for reaction–diffusion systems." *Journal of Evolution Equations* 18, no. 2 (2018): 845-869.