

Long-time behavior for Vlasov-Fokker-Planck with general potentials

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In this presentation, I will talk about the well-posedness, steady states and long time behavior of solutions to Vlasov-Fokker-Planck equation with external confinement potential and self-consistent interactions. Compared to previous works on this topic, our results allow for large, singular and non-symmetric interactions. As a corollary of our main results, we show exponential decay of solutions to the Vlasov-Poisson-Fokker-Planck equation in dimension 3, for low regularity initial data, and arbitrarily small Debye length (i.e. arbitrarily large nonlinearity). This is a joint work with Pierre Gervais (Univ. Lille).