Asymptotic Convergence of The Heterogeneous First-Order Aggregation Models: From The Sphere to The Unitary Group

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Abstract

In this talk, we establish the convergence toward equilibrium for heterogeneous multi-agent systems on the unit sphere and the unitary group that can be understood as (small) perturbation of gradient flows. Due to the heterogeneity, one could expect that all relative distances converge to definite values and furthermore that each agent converges to a possibly different stationary point. For the desired convergence, we use the lifting method and dimension reduction method for the cases of the unit sphere and unitary group, respectively. This talk is based on the joint work with Dr. Hansol Park (Dalhousie University).