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Mean field limit of asymmetric Cucker-Smale model

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Flocking is a form of collective behavior commonly observed in nature, particularly among birds and fish. We focus on the Motsch-Tadmor particle model for birds flocking, which differs from the classical Cucker-Smale model due to its use of a relative influence term which introduces an asymmetry in the interactions. While the mean field limit has been rigorously established for the Cucker-Smale model, the corresponding result for the Motsch-Tadmor model remains an open problem. We aim to derive the kinetic equation corresponding to the microscopic Motsch-Tadmor model and to provide a rigorous proof of propagation of chaos. In this talk, I will provide an overview of the model and problem, and present our strategy toward resolving this open question.

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