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Deterministic article approximation of gradient flows with nonlinear mobility

We prove that a weak solution of the scalar nonlinear conservation law describing the rearrangement of particles of a biological population subject to an attractive potential with strictly monotone velocity, can be rigorously obtained as the large particle limit of a suitable microscopic model which is interpreted as the discrete Lagrangian approximation of the nonlinear scalar conservation law.

This is a joint work with Marco Di Francesco and Simone Fagioli.