

Transport distances and geodesic convexity for systems of degenerate diffusion equations

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In my talk, I will introduce a Wasserstein-like transport distance between vector-valued measurable functions on the real line generalizing some aspects of the scalar theory by Dolbeault et al. (2009) and Lisini et al. (2010). Using this new distance, we are able to cast certain systems of nonlinear degenerate parabolic evolution equations into the variational framework of gradient flows. I will introduce a sufficient condition for the geodesic convexity of functionals with respect to this new distance. A possible application of this theory is proving existence of weak solutions to a class of systems of second- and fourth-order parabolic evolution equations. This is joint work with Daniel Matthes.