

A splitting method for nonlinear diffusions with nonlocal, nonpotential drifts

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In this talk, we prove an existence result for nonlinear diffusion equations in the presence of a nonlocal density-dependent drift which is not necessarily potential. The proof is constructive and based on the Helmholtz decomposition of the drift and a splitting scheme. The splitting scheme combines transport steps by the divergence-free part of the drift and semi-implicit minimization steps à la Jordan-Kinderlehrer-Otto to deal with the potential part.

This is a joint work with Guillaume Carlier.

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