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Gradient flow methods for thin-film and related higher order equations

We will discuss recent results on a class of higher-order evolution equations that can be viewed as gradient flows on the space of probability measures with respect to the Wasserstein metric. The simplest of these equations is the thin-film equation $\partial_t u = \partial_x(u\partial_x^3 u)$, which corresponds to the Dirichlet energy. We will consider questions of existence and uniqueness of these gradient flows. A key problem in the analysis is the lack of convexity of the relevant energy functionals.

(Joint work with Almut Burchard).