

Entropy solutions of scalar nonlocal conservation laws with congestion

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Abstract

In this talk we consider a class of scalar nonlinear models describing crowd dynamics. The congestion term appears in the transport equation in the form of a compactly supported nonlinear mobility function, thus making standard weak-type compactness arguments and uniqueness of weak solutions fail. We introduce two different approaches to the problem and discuss their connections with the wellposedness of entropy solutions of the target pde in the sense of Kruřkov. A deterministic particle approach relying on suitable generalisations of the Follow-the-leader scheme, which can be interpreted as the Lagrangian discretisations of the problem; and a variational approach in the spirit of a minimising movement scheme exploiting the gradient flow structure of the evolution in a suitable metric framework.