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Alberto Bressan*, Pennsylvania State University. *Optimal transportation metrics and nonlinear wave equations.*

The talk will review various types of evolution equations describing nonlinear waves. In some well known cases, the dynamic equations generate a semigroup which is Lipschitz continuous in a suitable Banach space. In other cases, one does not have Lipschitz continuous dependence on the initial data. We give some examples where a Riemann-type distance can be constructed, that renders the evolution Lipschitz continuous. In connection with some nonlinear wave equations, an equivalent distance can also be defined as the minimum cost for an optimal transportation problem. (Received November 29, 2004)