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Asymptotic Stability of peakons for the Novikov equation

The Novikov equation is an integrable Camassa-Holm-type equation with a cubic nonlinearity. One of its most important features is the existence of peaked traveling waves. In this talk, we will prove the asymptotic stability of those peakon solutions, under $H^1(\mathbb{R})$-perturbations satisfying that their associated momentum density defines a non-negative Radon measure. In order to do that, we first prove a rigidity theorem, sometimes called Liouville theorem. The main novelty in our analysis, compared to that of the Camassa-Holm case, comes from the fact that the momentum is not a conserved quantity anymore. To overcome this problem, we introduce a new Lyapunov functional unrelated to the (non-conserved) momentum of the equation.