

Spectral stability of nonlinear waves: essential spectrum and semigroup estimates

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There is rich structure to the spectrum of linear operators on an unbounded domain and its relation to the spectrum of similar operators on bounded sets. This week presents an overview of linear operators arising from equilibrium of wave solutions of dissipative and dispersive systems. We cover exponential dichotomies and Fredholm theory for asymptotically constant differential linear operators on the line. We introduce essential, point, and absolute spectrum and their interrelations and their deformation under weighted norms. We progress to resolvent estimates via the Laplace transform and their application to spectral and nonlinear stability of linear conservation laws.