Indices of stability for nonlinear waves and patterns

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Abstract

It would be nice to look at a wave, in one dimension, or a pattern in higher dimensions, and be able to decide if it would be stable relative to a prescribed dynamical equation of interest. Because of Sturm–Liouville theory, this is often possible for a scalar equation in one dimension. I shall discuss some thoughts as to how such a dream might be realized for systems of equations in one and higher dimensions.