Oberseminar Nichtlineare Differentialgleichungen

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Nonlinear stability of periodic wave trains against (fully) nonlocalized perturbations

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Abstract: The purpose of the talk is to explain why periodic wave trains are not only nonlinearly stable against co-periodic or localized perturbations, but also against sums of co-periodic and localized perturbations and even against fully nonlocalized perturbations. Such and further extensions are discussed for paradigm models of dissipative pattern-forming systems including the FitzHugh-Nagumo system, reaction-diffusion systems and the Lugiato-Lefever equation. A typical challenge arises due to the touching of the critical spectral curve at the origin. Furthermore, we point out exciting open questions and perspectives arising from our analysis.

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