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Lehrstuhl für Analysis und Modellierung

**Lehrstuhl-Seminar  
Sommersemester  
2020**

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**The role of advection on the stability  
of stripes near planar Turing instability**

**14. Mai 2020 - 10:45**

**WebEx Meeting**

Abstract: Motivated by vegetation patterns on sloped landscapes, the effect of advection terms on the existence and stability of stripes has been studied in recent years. Here we add a refined analysis near the onset of a Turing instability under the impact of weak anisotropy by directional advection in the generic form of planar reaction-diffusion systems with two components. We prove the existence and study the stability of stripes against large-wavelength and latticed perturbations. The loci of bifurcations and stability boundaries under the influences of the advection and quadratic nonlinearity are obtained. We also present numerical computations that corroborate the analysis.