

Evans function, parity and nonautonomous bifurcation

Christian Pötzsche

Institut für Mathematik, Universität Klagenfurt, Austria
christian.poetzsche@aau.at

Robert Skiba

Wydział Matematyki i Informatyki
Uniwersytet Mikołaja Kopernika w Toruniu, Poland
robo@mat.umn.pl

This is a joint work with Iacopo Longo (Imperial College, London, UK).

We provide an approachable and yet flexible sufficient condition for the bifurcation of bounded entire solutions to nonautonomous ordinary differential equations. This requires to relate the parity [1], which is a crucial tool in the abstract bifurcation theory of nonlinear Fredholm operators to the Evans function [3], an established concept for the stability analysis of traveling waves to evolutionary differential equations.

We illustrate that isolated zeros of the Evans function imply that critical spectral intervals of the Sacker-Sell (dichotomy) spectrum split, while sign changes of the Evans function are sufficient for local and global bifurcations of whole continua of bounded entire solutions.

References

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