

Generic dynamics of the scalar parabolic equations

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Abstract

The hyperbolicity of equilibrium points and periodic orbits, as well as the transversality of the intersection of their stable and unstable manifolds, are important features from the dynamical point of view. The fact that they hold for almost all ODE is a first basic step to understand the qualitative dynamics of a generic ODE (stability and bifurcations, chaotic behaviour etc.).

In this talk, we consider the family of scalar parabolic equations and wonder if these transversality properties hold for “almost all” the parabolic PDE. We review the known results and explain the connection between this dynamical problem and pure PDE properties as unique continuation, observability, Sturm theory...

This is a joint work with Pavol Brunovsky and Genevieve Raugel.