ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

9. Ordinary Differential Equations
and Dynamical Systems

1991 MS Classification: 34
Rayskin, Victoria

Degenerate homoclinic crossings

Let $F : M \to M$ denote a diffeomorphism of a C^∞-manifold M. Let $p \in M$ be a hyperbolic fixed point with stable and unstable manifolds W_S and W_U respectively. Let q be a point other than p at which these manifolds cross. Suppose W_U and W_S cross non-transversally, i. e., they have a *degenerate homoclinic crossing*. It is shown that, subject to C^1-linearizability and diagonalizability of the linear part of a map, a transverse crossing will arise and imply a horseshoe structure, if the codimension of one of the invariant manifolds is 1. Also, it is shown that in the planar case the Hirsch's linearizability assumption is unnecessary.