Totally ordered non-singular Morse-Smale flows on S^3

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Non-singular Morse-Smale flows are characterized by the round handle decomposition of the manifold where they are defined [3], [1]. For NMS flows on the 3-dimensional sphere S^3, M. Wada obtains a characterization of the flows in terms of links of periodic orbits [4].

From the round handle decomposition of NMS flows on S^3 we determine which flows have heteroclinic trajectories due to transversal intersections of invariant manifolds [2].

In this paper we show that the presence of heteroclinic trajectories imposes an order in the round handle decomposition of a Nonsingular Morse-Smale flow on S^3. We also obtain that this order is total for NMS flows composed of one repulsive, one attractive and n unknotted saddle orbits.

References

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