Homework Assignment 6

March 31, 2008

1. Give an example of a diffeomorphism \( f \) such that \( \text{NW}(f|_{\text{NW}(f)}) \neq \text{NW}(f) \).

2. Prove that if \( f \) satisfies Axiom A, then \( \text{NW}(f) \) is a locally maximal hyperbolic set.

3. For a Markov partition prove that the stable boundary is forward invariant and the unstable boundary is backward invariant.

4. Let \( f \in \text{Diff}(M) \) be Anosov and \( A \) a transition matrix for a Markov partition. Let \( h : \Sigma_A \rightarrow M \) be the semi-conjugacy. Prove that \( s \in \Sigma_A \) is periodic for \( \sigma_A \) if and only if \( h(s) \) is periodic for \( f \). Can the periods be different?

5. Construct a Markov partition for the solenoid.