We study the Hölder shadowing property for diffeomorphisms of a compact manifold. We proved that if any $d$-pseudotrajectory of diffeomorphism $f$ can be $d^\alpha$ shadowed by an exact trajectory on intervals of length $1/d^\alpha$ for $\alpha > 1/2$ then $f$ is in fact structurally stable.

We discuss connections of this problem with Katok’s question: ”Does any diffeomorphism Hölder conjugated to Anosov must be Anosov by itself?” and Hammel-Grebogi-Yorke conjecture on shadowability of Henon map.

The main technique is consideration of inhomogeneous linear equation

$$v_{k+1} = A_kv_k + w_{k+1},$$

where $A_k$ are differential of the diffeomorphism along an exact trajectory and $w_k$ is an arbitrarily bounded sequence. (Received September 09, 2011)