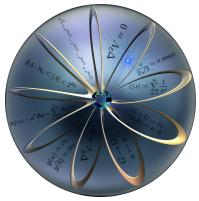

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Axiom A

Canonical name	AxiomA
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Entry type	Definition
Classification	msc 37D20
Synonym	hyperbolic diffeomorphism

Let M be a smooth manifold. We say that a diffeomorphism $f\colon M \to M$ satisfies (Smale's) *Axiom A* (or that f is an Axiom A diffeomorphism) if

1. the nonwandering set $\Omega(f)$ has a hyperbolic structure;
2. the set of periodic points of f is dense in $\Omega(f)$: $\overline{\mathrm{Per}(f)} = \Omega(f)$.

Sometimes, Axiom A diffeomorphisms are called hyperbolic diffeomorphisms, because the portion of M where the "interesting" dynamics occur (namely, $\Omega(f)$) has a hyperbolic behaviour.