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**Shadowing Lemma for Morse-Smale
dynamical systems on Hilbert spaces**

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In this talk, we will present results concerning the Shadowing property. Our main goal is to extend known results about Shadowing from finite-dimensional compact manifolds to infinite-dimensional spaces. As far as we know, the Lipschitz Shadowing property in nonlinear systems typically requires some form of finite dimensionality, even when the phase space is infinite dimensional. For instance, if \mathcal{T} is a Morse-Smale dynamical system defined on a Hilbert space X that possesses an inertial manifold \mathcal{M} (which is finite dimensional), then \mathcal{T} exhibits the Shadowing property in a neighborhood of the attractor \mathcal{A} . Motivated by this, we show that it is still possible to obtain the Shadowing property in an infinite-dimensional setting, without relying on the existence of an inertial manifold or reducing the problem to a finite-dimensional

References

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