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Title:

Stably shadowable chain components

Abstract:

We prove that any stably shadowable chain component is hyperbolic. To this aim we give a "selecting type" lemma that is analogous to the selecting lemma of Liao. It selects under an "oscillating condition" a collection of consecutive "quasi-hyperbolic strings" of arbitrarily mild rates of contractions and expansions. This gives rise to a long quasi-hyperbolic string with the two end-points very close, hence is shadowed by a periodic orbit (of arbitrarily mild rates). If a stably shadowable chain component were not hyperbolic this lemma will apply. Moreover, the shadowing periodic orbit of mild rates can be proved to be inside the chain component. This would contradict a previous result of Sakai.