

arXiv.org > math > arXiv:1107.3601

Mathematics > Dynamical Systems

Embedding smooth and formal diffeomorphisms through the Jordan-Chevalley decomposition

Javier Ribón

(Submitted on 19 Jul 2011)

In [Xiang Zhang, The embedding flows of \$C^{\infty}\$ hyperbolic diffeomorphisms, J. Differential Equations 250 (2011), no. 5, 2283-2298] Zhang proved that any local smooth hyperbolic diffeomorphism whose eigenvalues are weakly nonresonant is embedded in the flow of a smooth vector field. We present a new, simpler and more conceptual proof of such result using the Jordan-Chevalley decomposition in algebraic groups and the properties of the exponential operator. We characterize the hyperbolic smooth (resp. formal) diffeomorphisms that are embedded in a smooth (resp. formal) flow. We introduce a criterium showing that the presence of weak resonances for a diffeomorphism plus two natural conditions imply that it is not embeddable. This solves a conjecture of Zhang. The criterium is optimal, we provide a method to construct embeddable diffeomorphisms with weak resonances if we remove any of the conditions.

Comments: 25 pages Subjects: Dynamical Systems (math.DS); Complex Variables (math.CV) MSC classes: Primary: 34C20, 37F75, Secondary: 34C41, 34M25 Cite as: arXiv:1107.3601 [math.DS] (or arXiv:1107.3601v1 [math.DS] for this version)

Submission history

From: Javier Ribón [view email] [v1] Tue, 19 Jul 2011 00:49:20 GMT (22kb)

Which authors of this paper are endorsers?

Link back to: arXiv, form interface, contact.

We gratefully acknowledge supp the Simons Fo and member ins

Search or Article-id

(<u>Help</u> | <u>Advance</u> All papers -

Download:

- PDF
- PostScript
- Other formats

Current browse cont math.DS

< prev | next >

new | recent | 1107

Change to browse b

math math.CV

References & Citatio

NASA ADS

Bookmark(what is this?)