

Abstract Submitted
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Calculation of stochastic broadening due to noise and field errors in the simple map in action-angle coordinates COURTNEY HINTON, ALKESH PUNJABI, HALIMA ALI, Hampton University — The simple map is the simplest map that has topology of divertor tokamaks [1]. Recently, the action-angle coordinates for simple map are analytically calculated, and simple map is constructed in action-angle coordinates [2]. Action-angle coordinates for simple map can not be inverted to real space coordinates (R,Z). Because there is logarithmic singularity on the ideal separatrix, trajectories can not cross separatrix [2]. Simple map in action-angle coordinates is applied to calculate stochastic broadening due to magnetic noise and field errors. Mode numbers for noise + field errors from the DIII-D tokamak are used. Mode numbers are $(m,n)=\{(3,1), (4,1), (6,2), (7,2), (8,2), (9,3), (10,3), (11,3), (12,3)\}$ [3]. The common amplitude δ is varied from 0.8×10^{-5} to 2.0×10^{-5} . For this noise and field errors, the width of stochastic layer in simple map is calculated. This work is supported by US Department of Energy grants DE-FG02-07ER54937, DE-FG02-01ER54624 and DE-FG02-04ER54793 1. A. Punjabi, H. Ali, T. Evans, and A. Boozer, Phys. Let. A **364**, 140–145 (2007). 2. O. Kerwin, A. Punjabi, and H. Ali, to appear in Physics of Plasmas. 3. A. Punjabi and H. Ali, P1.012, 35th EPS Conference on Plasma Physics, June 9-13, 2008, Hersonissos, Crete, Greece.

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