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Reconnection and transport in a two-frequency nontwist map model of a reversed magnetic shear tokamak ALEXANDER WURM, Western New England University — The magnetic field line structure of reversed magnetic shear tokamaks has been modeled by an area-preserving nontwist map that includes non-integrable perturbations from an ergodic magnetic limiter [1]. An expansion around the equilibrium shearless curve (corresponding to the main transport barrier in the model) showed that the map is locally equivalent to the standard nontwist map with an additional perturbation due to the limiter [2]. Here I report on recent studies of separatrix reconnection, a global bifurcation that changes the phase space topology in the vicinity of the central barrier, and its consequences for global transport.

[1] K. Ullmann and I.L. Caldas, Chaos, Solitons and Fractals, **11**, 2129 (2000).
[2] J.S.E. Portela, I.L. Caldas, R.L. Viana, and P.J. Morrison, Internat. J. Bifur. Chaos Appl. Sci. Engrg. **17**, 1589 (2007).

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