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The simple map - equilibrium, safety factor on magnetic axis, and perturbation from map parameter NAKEISHA JOHNSON, TANZANIA GUEST, LATOYA PRESSLEY, HALIMA ALI, ALKESH PUNJABI, Hampton University — The simple map is the simplest symplectic map that has the generic magnetic topology of divertor tokamaks. The generating function of the simple map is $S(x,y) = x^2/2+y^2/2-y^3/3$. The equilibrium magnetic surfaces of the simple map are calculated from the generating function. $0 < S < 1/6$ gives closed surfaces and private flux surfaces; $S = 1/6$ gives the separatrix, and $S > 1/6$ gives open surfaces. The scaling of safety factor on the magnetic axis, q_0, with map parameter k is calculated. The scaling of root mean square deviation of energy on the q_{95} surface with map parameter k is calculated and taken as the estimate of magnetic asymmetry to represent the magnetic perturbation. The results of this work will be reported. These results are used to calculate homoclinic tangle of the separatrix of simple map.
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Alkesh Punjabi
Hampton University

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