

Periodic, homoclinic and heteroclinic orbits for Hénon Heiles Hamiltonian near the critical energy level

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We provide new results on the existence of infinitely many solutions for the Hénon-Heiles system which are homoclinic or heteroclinic to periodic solutions. We also prove an existence of infinitely many symmetric periodic solutions. All results are for an explicitly given energy interval containing the critical value of $1/6$. All proofs are computer assisted.