A GEOMETRIC PROOF OF THE ARNOLD CONJECTURE FOR 3 DEGREE-OF-FREEDOM CONVEX NEARLY INTEGRABLE SYSTEMS.

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Abstract. We will give a short overview of a geometric proof of the existence of global diffusion for cusp-generic 3 degree-of-freedom convex nearly integrable Hamiltonian systems. The main ingredients are:

(1) the existence of compact normally hyperbolic cylinders visiting most of the phase space
(2) the Birkhoff theory of twist maps on the annulus applied to suitable sections inside the cylinders
(3) the generic properties of the homoclinic correspondence
(4) a general simple shadowing lemma for compact normally hyperbolic manifolds.