

1023-35-543

Jared Wunsch* (jwunsch@math.northwestern.edu), Department of Mathematics, Northwestern University, 2033 Sheridan Rd., Evanston, IL 60208. *Spreading of regularity for quasimodes.*

A quasimode is a generalization of a sequence of eigenfunctions with eigenvalue tending to infinity. We consider the regularity and concentration of quasimodes of the Laplacian on some Riemannian manifolds. On the Bunimovich stadium, we show that notwithstanding the existence of vertical bouncing-ball orbits, a quasimode cannot concentrate too well within the rectangular region. (This is joint work with Burq and Hassell, improving a prior result of Burq-Zworski.) A generalization of part of this argument then yields a result on the spreading of Lagrangian regularity of quasimodes along rational invariant tori in integrable systems. (Received September 17, 2006)