1139-35-297 **Jesenko Vukadinovic*** (jesenko.vukadinovic@csi.cuny.edu), 365 Fifth Avenue, PhD Program in Mathematics, New York, NY 10016. *Diffusion enhancement by Hamiltonian flows with hyperbolic equilibrium points.*

This is an extension of author's work on diffusion enhancement by closed flows with Hamiltonians that allow only elliptic equilibrium points to closed flows with Hamiltonians that allow for hyperbolic equilibrium points. Averaging along stream lines allows for quantizing of the 2D advection-diffusion equation to 1D Schrodinger equations with purely imaginary potentials. When hyperbolic points are present, the quantized problem is phrased on a Reeb graph with certain gluing conditions on the separatrix vertices. The work is closely related to Freidlin-Wentzell theory of randomly perturbed Hamiltonian systems, however the approach is deterministic rather than stochastic, and offers some new insights into the relationship between kinematic properties of the flow and diffusion enhancement. (Received February 14, 2018)