1129-35-215 **Michele Coti Zelati*** (micotize@umd.edu). *Stochastic perturbations of passive scalars and small noise inviscid limits.*

We consider a class of invariant measures for a passive scalar driven by an incompressible velocity field on a periodic domain. The measures are obtained as limits of stochastic viscous perturbations. We prove that the span of the H1 eigenfunctions of the transport operator contains the support of these measures, and apply the result to a number of examples in which explicit computations are possible (relaxation enhancing, shear, cellular flows). In the case of shear flows, anomalous scalings can be handled in view of a precise quantification of the enhanced dissipation effects due to the flow. (Received March 16, 2017)