1159-37-117 **Vincent R Martinez*** (vrmartinez@hunter.cuny.edu), 695 Park Ave, New York, NY 10065.

On the controlliability of the damped-driven KdV equations and applications. Preliminary report.

This talk will discuss, in the context of the damped-driven KdV equations, an approach recently developed by GlattHoltz, Herzog, and Mattingly for establishing controllability. In particular, this approach provides a versatile framework for constructing controls that achieve global approximate controllability and exact controllability in finite-dimensional subspaces. We highlight the difficulties one faces with this approach in the case of the damped-driven KdV equation, how they can be overcome, as well as discuss applications of the result in the stochastically forced case to unique ergodicity and nondegeneracy of the Malliavan matrix. This is joint work with Nathan Glatt-Holtz (Tulane) and Geordie Richards (Utah State). (Received August 05, 2020)