1126-35-312   **Tadahiro Oh** and **Geordie Richards*** (`geordie.richards@usu.edu`), Mechanical & Aerospace Engineering, Utah State University, 4130 Old Main Hill, Logan, UT 84322, and **Laurent Thomann**. *On invariant Gibbs measures for generalized KdV.*

We will discuss some recent results on invariant Gibbs measures for the periodic generalized KdV equations (gKdV). Proving invariance of the Gibbs measure for gKdV is nontrivial due to the low regularity of functions in the support of this measure. Bourgain proved this invariance for KdV and mKdV, which have quadratic and cubic nonlinearities, respectively. Previously, we proved invariance of the Gibbs measure for the quartic gKdV by exploiting a nonlinear smoothing induced by initial data randomization. More recently, in joint work with Tadahiro Oh (Edinburgh) and Laurent Thomann (Lorraine), we have established this invariance for gKdV with any odd power (defocusing) nonlinearity. This argument relies on a probabilistic construction of solutions using the Skorokhod representation theorem. (Received January 17, 2017)