

**PDE seminar**  
**University of Minnesota**  
**Wednesday, September 12**

Speaker: **Geordie Richards, IMA**

Title: **Invariance of the Gibbs measure for the periodic quartic KdV.**

**Abstract:** The periodic generalized Korteweg-de Vries equation (gKdV) can be interpreted as an infinite-dimensional Hamiltonian system. Some properties of finite-dimensional Hamiltonian dynamics can be extended to infinite dimensions; for example, the invariance of the Gibbs measure under the flow. While interesting for dynamical reasons, an invariant Gibbs measure also provides a mathematical tool for extending local solutions to global solutions at low regularities in space (in the support of the Gibbs measure). We present the invariance of the Gibbs measure for the gauge-transformed quartic KdV. As a corollary, we obtain global well-posedness almost surely for the (un-gauged) quartic KdV at regularities where this PDE is analytically ill-posed.