1107-35-328 **Nathan Glatt-Holtz*** (negh@vt.edu). *The Stochastic Boussinesq Equations and Applications in Turbulent Convection.*

Buoyancy driven convection plays a ubiquitous role in physical applications: from cloud formation to large scale oceanic and atmospheric circulation processes to the internal dynamics of stars. Typically such fluid systems are driven by heat fluxes acting both through the boundaries (i.e. heating from below) and from the bulk (i.e. internal 'volumic' heating) both of which can have an essentially stochastic nature in practice.

In this talk we will review some recent results on invariant measures for the stochastic Boussinesq equations. These measures may be regarded as canonical objects containing important statistics associated with convection: mean heat transfer, small scale properties of the flow and pattern formation. We discuss ergodicity, uniqueness and singular parameter limits in this class of measures. Connections to the hypo-ellipticity theory of parabolic equations and to Wasserstein metrics will be highlighted.

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