

*Department of Mathematics,
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Math 243 - Functional Analysis Seminar

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Some nice measures in infinite-dimensions

Abstract:

Gaussian measures have long been recognized as the appropriate measures to use in infinite-dimensional analysis. Their regularity properties have allowed the development of a calculus on these measure spaces that has become an invaluable tool in the analysis of stochastic processes and their applications.

Gaussian measures arise naturally in the context of random diffusions, specifically as the end point distribution of Brownian motion, and one may see their regularity as arising from nice properties of the generator of the diffusion. More particularly, in finite dimensions, hypoellipticity of the generator is a standard assumption required for regularity of the associated measure. However, in infinite dimensions it has remained elusive to demonstrate that hypoellipticity is a sufficient condition for regularity. Using techniques first developed by Bruce Driver and Masha Gordina, there has been some recent success in proving regularity for some natural infinite-dimensional hypoelliptic models. These techniques rely on establishing uniform bounds on coefficients appearing in certain functional analytic inequalities for semi-groups on finite-dimensional approximations. We will discuss some of these successful applications, including more recent work studying models satisfying only a weak notion of hypoellipticity. This includes joint works with Fabrice Baudoin, Dan Dobbs, Bruce Driver, Nate Eldredge, and Masha Gordina.

Host: David Jekel

Tuesday, October 26, 2021

11:00 AM

On Zoom. Please email djekel@ucsd.edu for details.
