Temple/Penn Probability Seminar

Smooth measures in infinite dimensions

Tai Melcher (Univ. Virginia)

Tuesday, October 20, 2015
2:30-3:30pm, Rittenhouse Lab 3C8 (Penn)

A collection of vector fields on a manifold satisfies Hörmander's condition if any two points can be connected by a path whose tangent vectors lie in the given collection. It is well known that a diffusion which is allowed to travel only in these directions is smooth, in the sense that its transition probability measure is absolutely continuous with respect to the volume measure and has a strictly positive smooth density. Smoothness results of this kind in infinite dimensions are typically not known, the first obstruction being the lack of an infinite-dimensional volume measure. We will discuss some smoothness results for diffusions in a particular class of infinite-dimensional spaces. This is based on joint work with Fabrice Baudoin, Daniel Dobbs, Bruce Driver, Nate Eldredge, and Masha Gordina.