Title: "Integrated Harnack Inequalities and the Cameron – Martin Theorem"

Abstract: Let $p_t(x)$ be the normal density on $\mathbb{R}^n$ with variance, t. A simple computation shows

$$\left(\int_{\mathbb{R}^n}\left[\frac{p_t(x-y)}{p_t(x-z)}\right]^p p_t(x-z)\,dx\right)^{1/p} = \exp\left(\frac{(p-1)}{2t}\|y-z\|^2\right)\ \forall\ y,z\in\mathbb{R}^n.$$

This talk will be concerned with extending this inequality to more general diffusion densities (i.e. heat kernels). Along the way we will mention how such an (in)equality can be used to prove the analogue of the Cameron – Martin theorem for the end point distributions of certain infinite dimensional diffusions. Our (this is joint work with Maria Gordina) results will cover the case of elliptic left invariant diffusions on Lie groups. (Knowledge about Lie groups will **not** be assumed.) What happens for more general diffusions is still open.