

COLLOQUIUM

Degenerate Diffusions arising in Population Genetics

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We discuss the analysis of a class of degenerate elliptic operators defined on manifolds with corners, which arise in Population Biology. We first describe the basic existence and regularity theory in Holder spaces. We then show how techniques pioneered by J. Moser, and extended and refined by L. Saloff-Coste, Grigor'yan, and Sturm, are used to show that weak solutions to the parabolic problem defined by an important sub-class of these operators satisfy a Harnack inequality. This allows us to conclude that the solutions to these equations belong, for positive times, to the natural anisotropic Holder spaces, and also leads to upper and, in some cases, lower bounds for the heat kernels of these operators.

The lecture will take place in Thackeray 704 at 3:30pm.
Refreshments will start at 3:00pm.