

HÖLDER NORM ESTIMATES FOR ELLIPTIC OPERATORS ON FINITE AND INFINITE DIMENSIONAL SPACES

by

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Abstract: We introduce a new method for proving the estimate

$$\left\| \frac{\partial^2 u}{\partial x_i \partial x_j} \right\|_{C^\alpha} \leq c \|f\|_{C^\alpha},$$

where u solves the equation $\Delta u - \lambda u = f$. The method can be applied to the Laplacian on \mathbf{R}^∞ . It also allows us to obtain similar estimates when we replace the Laplacian by an infinite dimensional Ornstein-Uhlenbeck operator or other elliptic operators. These operators arise naturally in martingale problems arising from measure-valued branching diffusions. This is joint work with Ed Perkins and Rich Bass.