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Leibniz
Universität
Hannover

Oberseminar
Analysis und Theoretische Physik

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Small time asymptotics on the diagonal for
Hörmander's type hypoelliptic operators

We consider the heat equation associated to second order Hörmander operators, possibly with a drift term. Under the assumption of weak Hörmander's condition of hypoellipticity, we study the small time asymptotics of the heat kernel at a stationary point x_0 of the drift field. We show that the order of decay depends on the controllability of an associated control problem and of its approximating system: if the control problem of the approximating system is controllable at x_0 , then the fundamental solution has a polynomial decay as $t^{-N/2}$. The integer N is determined only by the Lie algebra at x_0 of the fields, which define the hypoelliptic operator, and generalizes the homogeneous dimension, that appears in the sub-Riemannian case without drift.

For the special class of operators with constant second order term and linear drift, we characterize geometrically the higher order coefficients of the expansion on the diagonal.

**Dienstag, 17.11.2015, 15:00h, Raum g005
Hauptgebäude der Leibniz Universität**

Dazu laden herzlich ein:
Prof. Dr. Wolfram Bauer
Prof. Dr. Joachim Escher
Prof. Dr. Olaf Lechtenfeld
Prof. Dr. Elmar Schrohe
Prof. Dr. Christoph Walker

Weitere Informationen finden Sie auch unter http://www.ifam.uni-hannover.de/os_analysis.html