

**ALTERNATIVE PROOFS OF MAXIMAL AND NON MAXIMAL  
SUBELLIPTIC ESTIMATES FOR GEOMETRIC  
KRAMERS-FOKKER-PLANCK EQUATIONS**

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The geometric Kramers-Fokker-Planck equation is the scalar principal part of Bismut hypoelliptic Laplacian studied by Bismut and Lebeau. The maximal subelliptic estimates were proved by Lebeau in Ann. Inst. Fourier 2007, using some microlocal reduction. I will present two alternative proofs based on local reductions, one providing the maximal estimates the second one providing subelliptic estimates with non optimal exponents. If the schedule allows it, I will explain the motivations for such alternative proofs.