

# Preface

The aim of the present text is to provide a self-contained introduction to the local geometry of the stochastic flows associated with stochastic differential equations.

The point of view we want to develop is that the local geometry of any stochastic flow is determined very precisely and explicitly by a universal formula referred to as the Chen-Strichartz formula. The natural geometry associated with the Chen-Strichartz formula is the sub-Riemannian geometry whose main tools are introduced throughout the text. By using the connection between stochastic flows and partial differential equations, we apply this point of view to the study of hypoelliptic operators written in Hörmander's form.

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*F. Baudoin,  
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