

In the thesis, multivariate fractional Brownian motions with possibly different Hurst indices in different coordinates are considered and a Girsanov-type theorem for these processes is shown. Two applications of this theorem to stochastic differential equations driven by multivariate fractional Brownian motions (SDEs) are given. Firstly, the existence of a weak solution to an SDE with a drift coefficient that can be written as a sum of a regular and a singular part and a diffusion coefficient that is dependent on time and satisfies suitable conditions is shown. The results are applied for the proof of existence of a weak solution of an equation describing stochastic harmonic oscillator. Secondly, the Girsanov-type theorem is used to find the maximum likelihood scalar estimator that appears in the drift of an SDE with additive noise.