

# ITÔ-STRATONOVICH FORMULA FOR GAUSSIAN PROCESSES: A RIEMANN SUMS APPROACH

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## ABSTRACT

The aim of this work is to establish a change of variable formula for general Gaussian processes whose covariance function satisfies some technical conditions. The stochastic integral is defined in the Stratonovich sense using an approximation by middle point Riemann sums. The change of variable formula is proved by means of a Taylor expansion up to the sixth order and applying the techniques of Malliavin calculus to show the convergence to zero of the residual terms. The conditions on the covariance function are weak enough to include processes with infinite quadratic variation, and we show that they are satisfied by the bifractional Brownian motion with parameters  $(H, K)$  such that  $1/6 < HK < 1$ , and, in particular, by the fractional Brownian motion with Hurst parameter  $H \in (1/6, 1)$ .

This is a joint work with David Nualart.

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