

## ON SEQUENCES OF THE WHITE NOISES

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*Abstract:* The aim of the paper is to prove the strong law of large numbers for Gaussian functionals (Theorem 3.1). The functionals are of the form  $f(X_i)$ , where  $f$  is integrable with respect to the Gaussian noise and the random vectors  $X_i$  are coordinatewise suitably correlated. In the last section we comment on the possibility of building noise analysis corresponding to the Legendre orthogonal polynomials analogous to the Wiener white noise theory based on Hermite orthogonal polynomials (Mehler's kernel).

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**Key words and phrases:** Gebelein's inequality, Hermite polynomials, Legendre polynomials, white noise, Wiener decomposition.

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