Bernoulli-Fock space

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Abstract

One of the main models for describing boson system is Fock space with the operators defined on it. Seagal's isomorphism establishes a correspondence between the Fock space and the space of square-integrable functionals from Gaussian white noise. In this work, the approximation of Gaussian white noise by the noise built on the Bernoulli random variables was constructed. It was proved that the elements of Bernoulli noise weakly converge to the corresponding elements of Gaussian white noise. To further work with the space of functionals from Bernoulli noise, a number of useful statements and theorems were derived: an analogue of Dynkin's formula for calculating the moments of the products for the elements of Bernoulli noise, the existence of a stochastic exponent, the expression for Wick's powers for Bernoulli noise and analog of Feynman diagrams for calculating the moments of Wick's products for elements of Bernoulli noise.

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