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WICK CALCULUS FOR VECTOR-VALUED GAUSSIAN WHITE NOISE FUNCTIONALS*

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Abstract. Based on a Gel'fand triple $(\mathcal{N})\otimes\mathcal{E}\subset\Gamma(H)\otimes\mathfrak{h}\subset((\mathcal{N})\otimes\mathcal{E})^*$, we introduce a new notion of Wick type product of generalized Gaussian white noise functionals which is associated with a continuous bilinear mapping $\mathfrak{B}:\mathcal{E}^*\times\mathcal{E}^*\to\mathcal{E}^*$. Then we study Wick type differential equations for vector-valued generalized Gaussian white noise functionals and, as a simple application, we study Wick type differential equations for matrix-valued generalized Gaussian white noise functionals. For our purposes, we make a systematic study of equicontinuity of the left and right Wick type multiplication operators.

2020 Mathematics Subject Classification: Primary 60H40; Secondary 46F25, 46A11.

Key words and phrases: white noise theory, Gaussian white noise functional, Wick product, equicontinuous, Wick type differential equation.

THE FULL TEXT IS AVAILABLE HERE

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