

Gauss-Markov processes on Hilbert spaces

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The talk is based on the joint work with Ben Goldys (Sydney) and Jezry Zabczyk (Warsaw)

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K. Itô characterised in [3] zero-mean stationary Gauss–Markov processes evolving on a class of infinite-dimensional spaces. In this work we extend the work of Itô in the case of Hilbert spaces: Gauss–Markov families that are time-homogenous are identified as solutions to linear stochastic differential equations with singular coefficients. Choosing an appropriate locally convex topology on the space of weakly sequentially continuous functions we also characterize the transition semigroup, the generator and its core thus providing an infinite-dimensional extension of the classical result of Courrège [1] in the case of Gauss–Markov semigroups.

References

- [1] Ph. Courrège, *Sur la forme integro-différentielle des opérateurs de C_K^∞ dans C_0 satisfaisant au principe du maximum*, in Sémin. Théorie du Potentiel, Exposé 2. 1965/1966.
- [2] B. Goldys, S. Peszat, and J. Zabczyk, *Gauss-Markov processes on Hilbert spaces*, Trans. Amer. Math. Soc., to appear.
- [3] K. Itô K, *Infinite-dimensional Ornstein-Uhlenbeck processes*, in Stochastic Analysis (Katata/Kyoto, 1982), pp. 197–224, North-Holland. 1984. T. Tao, *Higher order Fourier analysis*, Graduate