Program of the 19^{th} Internet Seminar

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Here is a short list of arguments that shall be considered in this course.

- Short introduction to measure theory; Gaussian measures and their properties.
- First properties of infinite dimensional Gaussian measures in Banach and Hilbert spaces; Fernique Theorem, reproducing kernel and Cameron–Martin space.
- Zero–one laws and characterisation of the elements of the reproducing kernel.
- The space of Brownian motion and the characterisation of the reproducing kernel and of the Cameron–Martin space in the classical Wiener space.
- Integration by parts formulae, gradient and divergence, Sobolev functions on abstract Wiener spaces; definitions and basic properties.
- Short introduction to the semigroup theory; definition of the Ornstein–Uhlenbeck semigroup and operator and characterisation of its domain. Hermite polynomials, the Wiener Chaos Decomposition.
- Poincaré and Log-Sobolev inequalities and spectral properties of the Ornstein–Uhlenbeck operator.