## Chapter 1 : Communications on Stochastic Analysis | Journals | Louisiana State University

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Artikel bewerten lEt moi, The series is divergent; therefore we may be Eric T. Bell able to do something with it. Heaviside Mathematics is a tool for thought. A highly necessary tool in a world where both feedback and non- linearities abound. Similarly, all kinds of parts of mathematics serve as tools for other parts and for other sciences. Applying a simple rewriting rule to the quote on the right above one finds such statements as: Realvalued measures on algebras of sets. Measurable and topological Radon spaces. Cylinder sets and cylindrical functions. General definition of cylinder set. Cylinder sets in a linear space X. Integral with respect to a quasimeasure. Quasimeasures in a measurable linear space. Integration of noncylindrical functions. Some notions related to the topology of linear spaces. Duality of linear spaces. Supplementary remarks and historical comments. Gaussian measures in Hilbert space. Gaussian measures in finite-dimensional spaces. Characteristic functional and density. Computation of certain integrals. Solution of the Cauchy problem. Some transformations of Gaussian measures in X. Gaussian cylindrical measures with arbitrary correlation operator. Measurable linear functionals and operators. Expansion into orthogonal polynomials. Absolute continuity of Gaussian measures. Equivalence of measures in a product space. Equivalence of Gaussian measures which differ by their means. Equivalence of Gaussian measures with distinct correlation operators. Absolute continuity of measures obtained from Gaussian measures by certain transformations of space. Fourier transformation with respect to a Gaussian measure. Fourier-Wiener transformation of entire nmctions. Connection between the Fourier-Wiener transformation and orthogonal polynomials. Integration of analytic functionals. Computation of certain Feynman integrals. Supplementary re marks and historical comments. Measures in linear topological spaces. The Hilbert space case. Integral representations of the group of unitary operators. Sequences of Radon measures. Weak compaetness in a spaee of measures. Weak completeness of spaees of measures. Differentiable measures and distributions. Differentiable functions, differentiable expressions. Derivatives of a vector function. Symmetrie and dissipative differential operators. Derivative of a measure. The derivative of a measure as an element of the dual space. Distributions and generalized functions. Test functions and measures. Generalized funetions and kernels. Fourier transformation of distributions. Differential expressions for distributions. Quasi-invariant distributions and bidistributions. Integral representations of invariant generalized kernels. Integral representations for quasi-invariant bidistributions. Weak solutions of evolution equations. Equations with constant operator. Operators with space-homogeneous symbol. Second order equations related to Gaussian measures. Second order equations with variable coefficient. Statement of the problem. Dimension independent apriori estimates. A priori estimates for derivatives of solutions of the Cauchy problem, independent of the number of arguments. Equations with cylindrical coefficients. Measures determined by sets of finite-dimensional equations. Solution of the Cauchy problem for a single equation in an infinitedimensional space. Systems of equations in an infinite-dimensional space. Integration in path space. A boundedness condition for a Markov quasimeasure. Integration with respect to a Markov quasimeasure. Evolution families of operators. Construction of the evolution family. The chronological product of evolution families. Linear evolution families with constant generating operator. Linear evolution families with variable generating operator. Evolution families related to quasilinear equations. Linear evolution families and functional integrals. Transition measures and evolution families. Integration of multiplicative functionals. Nonlinear evolution families, and integrals in branching path space. Evolution families in the dass of formal power series. Construction of a multiplicative integral. Convergence of formal expansions. Markov quasimeasures and integrals along branching paths. Probabilistic representations of solutions of parabolic equations and systems. Basic not ions from the theory of stochastic

processes. Equations with bounded operators. Equations with unbounded operator. Equations with random coefficients. Operator multiplicative functionals and the evolution families determined by them. Smoothness with respect to the initial value of the solution of a stochastic differential equation and of the corresponding multiplicative functional. Invariance of smooth functions under an evolution family. The Cauchy problem for second order parabolic systems. The Cauchy problem for a single linear equation. The Cauchy problem for a linear system. Admissible operators defined by differential equations.

## Chapter 2 : Dynamical system (definition) - Wikipedia

*Measures and Differential Equations in Infinite-Dimensional Space (Mathematics and its Applications) Softcover reprint of the original 1st ed. Edition.*

Kolmogorov equations in infinite dimensions: We develop a new method to uniquely solve a large class of heat equations, so called Kolmogorov equations in infinitely many variables. The equations are analyzed in spaces of sequentially weakly continuous functions weighted by proper Lyapunov type functions. This way for the first time the solu This way for the first time the solutions are constructed everywhere without exceptional sets for equations with possibly non-locally Lipschitz drifts. Apart from general analytic interest, the main motivation is to apply this to uniquely solve martingale problems in the sense of Stroock-Varadhan given by stochastic partial differential equations from hydrodynamics, such as the stochastic Navier-Stokes equations. In this paper this is done in the case of the stochastic generalized Burgers equation. Uniqueness is shown in the sense of Markov flows. Elliptic equations for invariant measures on finite and infinite dimensional manifolds by Vladimir I. Bogachev, Feng-yu Wang - J. We obtain sufficient conditions in terms of Lyapunov functions for the existence of invariant measures for diffusions on finite dimensional manifolds and prove some regularity results for such measures. These results are extended to countable prod-ucts of finite dimensional manifolds. We introduce and study a new concept of weak elliptic equations for measures on infinite dimensional manifolds. Then we apply our results to Gibbs distributions in the case where the single spin spaces are Riemannian manifolds. In particular, we obtain some a priori estimates for such Gibbs distributions and prove a general existence result applicable to a wide class of models. We also apply our techniques to prove absolute continuity of in-variant measures on the infinite dimensional torus, improving a recent result of A. Furthermore, we obtain a new result concerning the question whether invariant measures are Gibbsian. Show Context Citation Context The principal results in this work can be summarized as follows: Markov processes associated with Lp-resolvents and appli- cations to stochastic differential equations on Hilbert space by Lucian Beznea, Nicu Boboc " We give general conditions on a generator of a C0-semigroup resp. We present a general We present a general method how these conditions can be checked in many situations. Applications to solve stochastic differential equations on Hilbert space in the sense of a martingale problem are given. Elliptic equations for measures: The membership of solutions in the Sobolev classes W p,1 Rn is established under ap-propriate conditions on the coefficients of L. See [11] for such estimates in the case of a Riemannian mani Some New Results by Vladimir I. We investigate stationary distributions of stochastic gradient systems in Rie-mannian manifolds and prove that, under certain assumptions, such distributions are symmetric. These results are extended to countable products of finite dimensional man-ifolds and applied to Gibbs distributions in the c These results are extended to countable products of finite dimensional man-ifolds and applied to Gibbs distributions in the case where the single spin spaces are Riemannian manifolds. In particular, we obtain a new result concerning the question whether all invariant measures are Gibbsian. Actually, we consider a more general object:

## Chapter 3 : CiteSeerX â€" Citation Query Measures and differential equations in infinite dimensional space

*Measures and Differential Equations in Infinite-Dimensional Space. Authors: Dalecky, Yu.L., Fomin, S.V.*

## Chapter 4 : Relations between Stochastic and Partial Differential Equations in Hilbert Spaces

*Furthermore, we discuss applications to infinite dimensional stochastic differential equations and prove some new existence results for L Â¯ = 0. These include results on the &quot;inverse problem&quot;, i.e., we give conditions ensuring that B is the (vector) logarithmic derivative of a measure.*