1023-60-747   **Habib Ouerdiane*** (`ouerdian@math.lsu.edu`), Department of Mathematics, Faculty of Sciences of Tunis, University Tunis El Manar, Tunisia. *Infinite dimensional heat equation of convolution type, solutions and probabilistic interpretation.*

The purpose of this talk is to give a probabilistic interpretation of the stochastic heat equation of convolution type. These equations are too singular to be solved in the traditional framework and as a result the solutions are located in an suitable generalized function space. As a tool we use the convolution calculus and the generalized stochastic calculus, namely the Ito formula for generalized functions. We are concerned with equations of the following type

$$\frac{\partial}{\partial t}U_t = \frac{1}{2}\Delta U_t + V_t * U_t, \qquad U_0 = f,$$

and

$$\frac{\partial}{\partial t}X_t = \frac{1}{2}\Delta X_t + H_t * \nabla X_t, \qquad X_0 = f,$$

where $t \in [0, T]$ and the coefficients V_t, H_t as well as the initial condition f are generalized functions. The explicit solutions are given in terms of the convolution product $*$ and then we show that they are represented in terms of the expectation of a generalized Brownian functional. (Received September 21, 2006)

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