

**NUMERICAL APPROACHES TO PARAMETER ESTIMATES IN
STOCHASTIC EVOLUTION EQUATIONS DRIVEN BY
FRACTIONAL BROWNIAN MOTION**

JAN POSPISIL

ABSTRACT. We study parameter estimates in stochastic evolution equations driven by fractional Brownian motion. Having an observation of the solution on some time interval $[0, T]$, consistent drift estimates are given for $T \rightarrow \infty$. Such a constraint is not necessary for the diffusion estimates that can be calculated for $T < \infty$ using the variation of the solution. We solve the one-dimensional SDE using the Euler-Maruyama method that has been modified so that the driving process is considered to be a fractional Brownian motion. A one-dimensional SPDE is then being solved using the modified finite differences method. In both cases we will use the numerical solution as our observation and we will show how to estimate the parameters either from a one path or many paths observation.

UNIVERSITY OF WEST BOHEMIA, FACULTY OF APPLIED SCIENCES, DEPARTMENT OF MATHE-
MATICS, 306 14 PLZEN, CZECH REPUBLIC
E-mail address: `jan.pospisil@kma.zcu.cz`

This work was partially supported by the GACR Grant 201/04/0750 and by the MSMT Research Plan MSM 4977751301.