

1056-35-1681

J Mahmoud Anabtawi* (manabtawi@aus.edu), Department of Mathematics and Statistics,
American University of Sharjah, P.O. Box 26666, Sharjah, 26666, United Arab Emirates.

*LYAPUNOV FUNCTIONALS VS LYAPUNOV FUNCTIONS IN STABILITY ANALYSIS FOR
STOCHASTIC PARABOLIC DIFFERENTIAL EQUATIONS OF ITO TYPE.* Preliminary
report.

In this work, Lyapunov like-functionals vs using Lyapunov like functions coupled with the comparison principle are utilized to establish sufficient conditions for practical stability criteria of the equilibrium state of a hybrid stochastic parabolic differential equation of Ito type. The main objective of the study is to compare between the two approaches and characterize the effect of each technique on stability analysis. A concluding remark will highlight the major differences between the two approaches for this specific type of differential equations with a diffusion term. (Received September 22, 2009)