

1079-60-433

**G. S. Ladde** (gladde@usf.edu), Department Of Mathematics & Statistics, University of South Florida, Tampa, FL 33629, and **Ling Wu\***, Department Of Mathematics & Statistics, University of South Florida, Tampa, FL 33629. *ARIMA Models Derived from Nonlinear Stochastic Differential Equations and Their Applications.*

ABSTRACT. Stochastic dynamic models are used to predict the future dynamic state of processes. This is achieved by modifying the nonlinear stochastic models from constant to time varying coefficients, and then time series ARIMA models are constructed. Using these constructed time series models, the prediction and comparison problems with the existing time series models are analyzed in the context of several data sets. The study shows that the nonlinear stochastic model 2 with time varying coefficients is robust with respect different data sets. (Received January 18, 2012)