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G. S. Ladde* (gladde@usf.edu), Department of Mathematics and Statistics, University of South Florida, 4202 East Fowler Avenue, CMC 342, Tampa, FL 33620-5700. *Fundamental Properties of Solutions of Systems of Nonlinear Stochastic Differential Equations*. Preliminary report.

The main objective of this work is to introduce an innovative method for global existence and uniqueness of solution processes for a class of nonlinear and nonstationary stochastic systems of differential equations. We note that the classical sufficient conditions for the global existence and uniqueness of solution processes are too restrictive, and the Khasminskii-type approach is either not feasible or not easily applicable. In this work, an innovative approach is developed. The idea is seeking a one-to-one nonlinear transformation that reduces a given system of stochastic differential equations that possesses the either classical or Khasminskii-type conditions. Applications are given to illustrate the role and scope of developed results. (Received September 14, 2016)