

1096-49-369

Mohsen Razzaghi* (razzaghi@math.msstate.edu), Department of Mathematics & Statistics, P.O. Box MA, 410 Allen Hall, Mississippi State, MS 39762. *Solution of delay systems in optimization problems by hybrid functions.*

Orthogonal functions and polynomial series, have recently been used to solve various problems of dynamical systems. The main advantage of using orthogonal functions and polynomial series is that they reduce the dynamical system problems to those of solving a system of algebraic equations. In this talk, a numerical method for solving the delay systems in optimization problems is proposed. The approach is based upon hybrid function approximations. The properties of hybrid functions which consists of block-pulse functions and Bernoulli polynomials are presented. The associated operational matrix of integration is then utilized to reduce the solution of the delay systems to the solution of a system of algebraic equations. The numerical solutions are compared with available exact or approximate solutions in order to assess the accuracy of the proposed method. (Received August 30, 2013)