SOME SYMMETRIES OF A RÖSSLER TYPE SYSTEM

Cristian LĂZUREANU and Tudor BÎNZAR

Abstract. In this paper a completely integrable case of the Rössler system is considered. For this system a symplectic realization and some symmetries are pointed out.
Keywords and phrases: Rössler system, symmetries, Hamiltonian dynamics, Lagrangian mechanics.

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MULTIPLE APPROXIMATE ANALYTIC SOLUTIONS OF THE UNSTEADY VISCOUS FLOW

Remus - Daniel ENE

Abstract. The unsteady viscous flow over a continuously shrinking surface with mass suction is investigated using the Optimal Homotopy Asymptotic Method (OHAM). The flow is governed by a third-order nonlinear differential equation with variable coefficients. A very good agreement was found between our approximate results and numerical solutions, which prove that OHAM is very efficient in practice, ensuring a very rapid convergence after only one iteration.
Keywords and phrases: optimal homotopy asymptotic method, unsteady flow, dual solutions.

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SOME REMARKS ABOUT A METRIPLECTIC SYSTEM ARISEN FROM THE CHEN-LEE'S SYSTEM

Camelia PETRIŞOR and Camelia POP

Abstract. The metriplectic system associated with Chen-Lee system is presented. Its dynamical and geometrical properties are pointed out.

Keywords and phrases: Metriplectic systems, Chen-Lee system, Hamilton-Poisson realization, synchronization.

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ANALYTICAL APPROXIMATE SOLUTIONS FOR THE EQUATIONS OF MOTION OF A SPHERICAL SOLID PARTICLE IN A COUETTE FLUID FLOW

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Abstract. In the present paper we compute new and more accurate analytical approximate solutions for the motion of a spherical solid particle in a plane Couette fluid flow by using the polynomial least squares method (PLSM) for the case of systems of nonlinear differential equations. The comparison with previous analytical approximate solutions given by other methods emphasizes the accuracy of the method.

Keywords and phrases: Couette flow approximate, analytical polynomial solution, polynomial least squares method.

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STABILITY THRESHOLD FOR MULTIADDITIVE AND SYMMETRIC MAPPINGS

Dan M. DĂIANU

Abstract. Z. Gajda showed that the control functions of the form $\varepsilon\left(\|x\|^r + \|y\|^r\right)$ do not provide stability for additive transformations if and only if $r = 1$. In this note we prove a similar result for *n*-additive and symmetric functions.

Keywords and phrases: additive mapings, Hyers–Ulam–Rassias stability, stability threshold.

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THE SDP-BASED ALGORITHM FOR LOCALIZATION PROBLEM IN WIRELESS SENSOR NETWORKS

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Abstract. The paper focuses on solving the problem of localization of nodes in wireless sensor networks using an algorithm based on semidefinite programming (SDP) technique. The dual problem is analytically derived and simulation results are reported.

Keywords and phrases: semidefinite programming, dual problem, sensor networks.

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