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Nonlocal nonlinear Schrödinger equations and their soliton

November 1st, 2019 - By using the Hirota bilinear method we first find soliton solutions of the coupled NLS system of equations then using the reduction formulas we find the soliton solutions of the standard and nonlocal NLS equations We give examples for particular values of the parameters and plot the function $q(x,t)$ for the standard and nonlocal NLS"Soliton solutions and stability analysis for some

December 26th, 2019 - This research presents soliton solutions and stability analysis to some conformable nonlinear partial differential equations CNPDEs The CNPDEs equations in this paper are conformable Cahn-Allen and conformable Zoomeron equations The powerful sine Gordon method is used to carry out the soliton solutions for these equations "***Septic B Spline Collocation Method for the Numerical***

December 13th, 2019 - Numerical solutions of the modified equal width wave equation are obtained by using collocation method with septic B spline finite elements with three different linearization techniques The motion of a single solitary wave interaction of two solitary wav'

'Exact Solutions of a Fermion Soliton System in Two Dimensions

December 2nd, 2019 - We investigate a coupled system of a Dirac particle and a pseudoscalar field in the form of a soliton in 1 1 dimensions and find some of its exact solutions numerically We solve the coupled set of equations self consistently and non perturbatively by the use of a numerical method and obtain the bound states of the fermion and the shape of'

'A new approach to exact optical soliton solutions for the

June 18th, 2019 - A new approach to exact optical soliton solutions for the nonlinear By using the modified homotopy analysis transform method we construct the analytical solutions of the space time generalized nonlinear Schrödinger equation involving a new fractional we present some numerical simulations and compare the solutions obtained'

'Soliton Wikipedia

December 20th, 2019 - The soliton solutions are typically obtained by means of the inverse scattering transform and owe their stability to the integrability of the field equations The mathematical theory of these equations is a broad and very active field of mathematical research'

'The General Form of Linearized Exact Solution for the KdV

November 14th, 2019 - The general form of linearized exact solution for the Korteweg and de Vries KdV equation with an arbitrary nonlinear coefficient is derived by the simplest equation method with the Bernoulli equation as the simplest equation It is shown that the proposed exact solution overcomes the long existing problem of discontinuity and can be'

Dr Abdul Majid Wazwaz Publications

December 17th, 2019 - PUBLICATIONS 1 Matched uniform Sub ODE method and soliton solutions for the variable coefficient mKdV equation with H Triki Appl Math Comput 534 A 2 1 dimensional extension of the Benjamin Ono equation multiple soliton solutions and multiple complex soliton solutions J Numerical Methods for Heat and Fluid Flow 2018'

'Solitary wave solutions of the fourth order Boussinesq

November 26th, 2019 - The exp $-\eta \xi$ expansion method is an ascending method for obtaining exact and solitary wave solutions for nonlinear evolution equations In this article we implement the exp $-\eta \xi$ expansion method to build solitary wave solutions to the fourth order Boussinesq equation The procedure is simple direct and useful with the help of'

'A numerical method to compute the scattering solution for

November 27th, 2019 - The authors propose a numerical method to approximate the solution of specific bivariate Volterra integral equations which arise in the numerical solution of the initial value problem for the Korteweg de Vries equation It can also have multi soliton solutions Springer Berlin 1991 Google Scholar'Dynamics of soliton solutions in the chiral nonlinear

November 30th, 2019 - Optical soliton solutions to this important model consisting Springer Science Business Media LLC part of Springer Nature View Show abstract Dark bright and other optical solitons to the decoupled nonlinear Schrödinger The Fourier-Von Neumann analysis is used in checking the stability of the used numerical method with the studied'*Numerical investigation of the solutions of Schroödinger*

July 5th, 2016 - 17 Ameneh Taleei Mehdi Dehghan Time splitting pseudo spectral domain decomposition method for the soliton solutions of the one and multi dimensional nonlinear Schroödinger equations Computer Physics Communications 185 6 2014 1515 1528 18 C de Boor A Practical Guide to Splines Springer 1978'

'A new fifth order nonlinear integrable equation multiple

January 9th, 2011 - In this paper we introduce a new fifth order nonlinear integrable equation The Hereman-Nuseri method is used to derive multiple soliton solutions and hence to confirm complete integrability of this equation The resonance phenomenon of this is investigated'

'The General Forms of the Multiple Soliton Solutions for

November 22nd, 2019 - The simplest equation method with the Burgers' equation as the simplest equation is used to handle two completely integrable equations the KdV equation and the potential KdV equation
The general forms of the multiple soliton solutions are formally established It is shown that the simplest equation method may provide us with a'

'Soliton Scholarpedia

December 27th, 2019 - A soliton is a solitary wave that behaves like a particle in that it satisfies the following conditions Scott 2005 It must maintain its shape when it moves at constant speed When a soliton interacts with another soliton it emerges from the collision unchanged except possibly for a phase shift"***Taylor collocation method for the numerical solution of***

December 20th, 2019 - In this study we construct a Taylor collocation method for the numerical solution of the nonlinear Schrödinger NLS equation We use suitable initial and boundary conditions Taylor series expansion is used for time discretization The cubic B spline collocation method is applied to spatial discretization Test problems concerning the single'

'Numerical Methods and Solutions of Nonlinear Dirac Equation

December 27th, 2019 - Numerical Methods and Solutions of Nonlinear Dirac Equation Huazhong Tang School of Mathematical Sciences Peking University 2013 09 12 3rd Russian Chinese Workshop on Numer'

'Central Upwind Schemes for Boussinesq Paradigm Equations

December 11th, 2019 - The goal of this paper is to develop an efficient and accurate numerical method for the 1 D and 2 D BPEs as well as to numerically study the stability and other properties of their soliton solutions Our numerical method is designed in several steps First we introduce a new variable $w = 1 + u_x$ in 1 D or $w = 1 + u_x$

'Soliton solutions to the time dependent coupled KdV

December 25th, 2019 - In this article the authors apply the Lie symmetry approach and the modified G/G expansion method for seeking the solutions of time dependent coupled KdV/Burgers equation Using suitable similarity transformations the time dependent coupled KdV/Burgers equation is reduced to a system of nonlinear ordinary differential equations'

'The tanh coth Method for Soliton and Exact Solutions of

December 24th, 2019 - travelling wave solutions and given some of their illustrations The new explicit soliton solution adequate previously known 20 numerical soliton solution and also produced new explicit solitary wave solutions 2 The tanh coth Method The tanh coth method discovered by Wazwaz 16'

'Soliton Collision in Biomembranes and Nerves A Stability

December 12th, 2019 - 2 2 Numerical Analysis To investigate the questions concerning the stability of the solitons of 6 B Lautrup et al have considered the model numerically in 3 In this contribution the stability of the solitonic solutions for infinitesimal perturbations was carried out along with the effect of dissipation on the soliton propagation" *New 3 1 dimensional nonlinear evolution Springer*

December 22nd, 2019 - In this work we introduce an extended 3 1 dimensional nonlinear evolution equation We determine multiple soliton solutions by using the simplified Hirota's method In addition we establish a variety of travelling wave solutions by using hyperbolic and trigonometric ansatze'

'Numerical Wave Solutions for Nonlinear Coupled Equations

December 23rd, 2019 - Numerical Wave Solutions for Nonlinear Coupled Equations using Sinc Collocation Method In this paper Soliton solutions are constructed to show the nature of the solution Exact and numerical travelling wave solutions for nonlinear coupled equations using symbolic computation Appl Math Comput 2004 151'

'Numerical analysis of soliton solutions of the modified

November 16th, 2019 - Numerical analysis of soliton solutions of the modified Korteweg de Vries sine Gordon equation Authors Abstract Multisoliton solutions of the modified Korteweg de Vries sine Gordon equation mKdV SG are found numerically by applying the quasi spectral Fourier method and the fourth order Runge Kutta method'

'Çelikkaya Operator splitting method for numerical

October 15th, 2019 - In order to test the accuracy and efficiency of the present method single soliton Numerical solutions of the GEW equation using MLS collocation method Internat W Hundsdorfer J Verwer Numerical Solution of Time Dependent Advection Diffusion Reaction Equations First Edition Springer Verlag Berlin Heidelberg 2003'

'Analytical and Numerical Methods for the CMKdV II Equation

April 8th, 2009 - Therefore the need for an easy and useful method which has to give soliton solutions for a given PDE is emerged An important method is developed by Hirota for finding N soliton solutions of non linear PDE
5 6 In this paper the Hirota s method is applied to the CMKdV II equation'

'Numerical simulation of two dimensional sine Gordon

December 19th, 2019 - In this paper numerical solutions of the second order two dimensional sine Gordon equation with Neumann boundary condition by a truly meshless method namely the meshless local radial point interpolation method LRPIM were considered The present method doesn t need any element or mesh for both interpolation and background integration'

'The k 1 Finite Element Numerical Solution for the

November 18th, 2019 - Firstly in Numerical Validation the proposed method is used for the numerical wave propagation simulation and comparing this simulation with the exact solution we validate the method we are really approximating the soliton solution by a non classical one the compacton 17 1 Numerical Validation We set and 17 18'

'New soliton solutions of the system of equations for the

November 17th, 2019 - The generalized Kudryashov method GKM which is one of the analytical methods has been tackled for finding exact solutions of the system of equations for the ion sound wave and the Langmuir wave By using this method dark soliton solutions of this system of equations have been obtained"Recent trends on applied mathematics and modeling

December 26th, 2019 - Recent Trends on Applied Mathematics And Modeling studies the Kudryashov Sinelshchikov and Jimbo Miwa equations Subsequently we formally derive the dark topological soliton solutions for these equations By using the sine cosine method some ad The numerical method presented in this work based on t'

'A numerical method for finding soliton solutions in

December 22nd, 2019 - An iterative method for finding soliton solutions to Korteweg de Vries and sine Gordon equations and for nonlinear Schrodinger equations with cubic nonlinearity is proposed In addition the existence of soliton solutions depending on control parameters is investigated for femtosecond pulse propagation problems in media with cubic nonlinearity'

'Dynamics of bright and dark multi soliton solutions for

November 29th, 2019 - Discrete N fold Darboux transformation DT is used to derive new bright and dark multi soliton solutions of two higher order Toda lattice equations Propagation and elastic interaction

structures of such soliton solutions are shown graphically The details of their evolutions are studied via numerical simulations Numerical results show the'

'Numerical method for soliton solutions

December 2nd, 2019 - The method also finds soliton solutions of other nonlinear evolution differential equations The method is virtually independent of the specific nonlinearity of the operator A feature of the method is the weak dependence of convergence on the form of the initial function'

'1 Introduction Scientific Research Publishing

December 11th, 2019 - which for the finite difference method is a problem and needs to be linearized with the help of bounds solutions and or iterative approach 10 is not a problem in our work which is treated formally by the L^2 Galerkin finite element formulation and leads us due to the reduced support in the basis functions to a time dependent tridimensional'

'A numerical dressing method for the nonlinear

December 15th, 2013 - The second method is used to compute finite genus solutions of the KdV equation The combination of these numerical methods allows for the computation of exact solutions that are asymptotically quasi periodic finite gap solutions and are a nonlinear superposition of dispersive soliton and quasi periodic solutions in the finite $x-t$ plane'

'Study of analytical method to seek for exact solutions of

December 5th, 2019 - In this paper we have been acquired the soliton solutions of the Variant Boussinesq equations Primarily we have used the enhanced G^* expansion method to find exact solutions of Variant Boussinesq equations Then we attain some exact solutions including soliton solutions hyperbolic and trigonometric function solutions of this equation"***Numerical Analysis and Its Applications Springer***

November 20th, 2019 - Soliton Like Regime of Femtosecond Laser Pulse Propagation in Bulk Media Under the Trofimov Vyacheslav A et al Preview Buy Chapter 30 19 ? Computational Method for Finding of Soliton Solutions of a Nonlinear Schrödinger Equation Pages 551 557 Trofimov Numerical Method for a Chemical Nonlinear Reaction Boundary Value Problem'

'Soliton solutions and traveling wave solutions for the two

September 4th, 2019 - Soliton solutions are derived by Hirota bilinear method This method gives a mechanism for finding arbitrary N soliton solutions for PDEs which can be written in bilinear form in the D operator via a transformation of the dependent variable We obtained the traveling wave solutions using the extended tanh method that provides'

'Numerical method for soliton solutions SpringerLink

October 31st, 2019 - An iterative method is proposed for finding soliton solutions of the Korteweg-de Vries equation The method also finds soliton solutions of other nonlinear evolution differential equations The method is virtually independent of the specific nonlinearity of the operator"*The G? G Expansion Method for Solutions of Evolution Equations*

December 24th, 2019 - The investigation about traveling wave solutions of nonlinear equations is an important and interesting subject because they play important role in understanding the nonlinear problems By using the G? G expansion method proposed recently we construct the travelling wave solutions involving parameters for the Hirota and Satsuma equations'

'ACCURATE NUMERICAL SIMULATION OF HIGHER ORDER SOLITON

December 15th, 2019 - Generally one considers only the groupvelocity dispersion GVD and self phase modulation SPM induced solitons inoptical communication while other higher order effects such as the third orderdispersion TOD self steepening and stimulated Raman scattering are wellthought out only perturbatively'

'Novel asymmetric representation method for solving the

September 5th, 2016 - The results in this paper extend the integrable methods and the asymmetric representation method can be used to solve other equations in different physical systems so as to study the soliton dynamics In addition the method here may provide a new idea to study two soliton solutions for the GL equation in the future research which is still an'

'Numerical method for soliton solutions Computational

December 7th, 2019 - Read Numerical method for soliton solutions Computational Mathematics and Modeling on DeepDyve the largest online rental service for scholarly research with thousands of academic publications available at your fingertips'

'Numerical Method of Determining a Localized Initial

October 30th, 2019 - Numerical Method of Determining a Localized Initial Cardiac Excitation for the Aliev Panfilov Model from Springer Verlag New York Inc Secaucus The article proposes an iterative method to find soliton solutions of the three dimensional Gross Pitaevskii equation that describes the interaction of a Bose Einstein

February 13th, 2019 - In this paper we present new numerical results for the dispersive optical soliton solutions of the nonlinear Schrödinger Hirota equation The spatio temporal dispersion term is included in addition to group velocity dispersion Kerr law of nonlinearity are studied A general recursive numerical scheme for the equation is devised via the'

'Exact and numerical soliton solutions to nonlinear wave

October 10th, 2019 - Exact and numerical soliton solutions to nonlinear wave equations Partial Differential Equations and Solitary Waves Theory Higher Education Press Beijing and Springer Verlag A transformed rational function method and exact solutions to the 3 1 dimensional Jimbo ? Miwa equation Chaos Solitons amp Fractals

November 26th, 2019 - Soliton solutions for a generalized shallow water model 597 3 Results and Discussion The following are the graph of some of the obtained solutions for $x_2 = 0$ 1000"Optical solitons in nonlinear directional couplers by sine

December 7th, 2019 - Read Optical solitons in nonlinear directional couplers by sine?cosine function method and Bernoulli?s equation approach Nonlinear Dynamics on DeepDyve the largest online rental service for scholarly research with thousands of academic publications available at your fingertips

Numerical Methods for Free Boundary Problems Springer
November 24th, 2019 - About 80 participants from 16 countries attended the Conference on Numerical Methods for Free Boundary Problems held at the University of Jyviiskyl? Finland July 23 27 1990 The main purpose of this conference was to provide up to date information on important directions of research in the"

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