

## *Darboux Transformation And Explicit Solutions For Two New*

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### **Darboux Transformation And Explicit Solutions**

Darboux transformation for the  $2 + 1$ -dimensional nonlocal Schrödinger equation is constructed by the Darboux matrix method. As applications, solitons, periodic waves and complex solutions of the considered equation are obtained. In particular, the dynamics of these solutions are discussed and illustrated through some figures.

### **Darboux transformation and explicit solutions for $2+1$ ...**

A Darboux transformation of the generalized TD equation is constructed with the help of the gauge transformation of the associated  $3 \times 3$  matrix spectral problems, from which we obtain some explicit solutions of the generalized TD equation.

### **Darboux transformation and explicit solutions to the ...**

For the nonlocal Davey-Stewartson I equation, the Darboux transformation is considered and explicit expressions of the solutions are obtained. Like other nonlocal equations, many solutions of this equation may have singularities.

### **Darboux Transformations and Global Explicit Solutions for ...**

Explicit formulae involving determinants are obtained for the solutions of a class of linear differential-difference and difference-difference evolution equations. The corresponding non-linear... Darboux transformation and the explicit solutions of differential-difference and difference-difference evolution equations | SpringerLink

### **Darboux transformation and the explicit solutions of ...**

The Darboux Transformation and New Explicit Solutions for the Belov—Chaltikian Lattice Article (PDF Available) in Chinese Physics Letters 29(10):100201 · October 2012 with 39 Reads

### **The Darboux Transformation and New Explicit Solutions for ...**

... For more than a century, only two types of transformations of linear partial differential operators satisfying our intertwining relation (Darboux transformations ...

### **Darboux transformation and explicit solutions of the ...**

We present a natural generalization of Wahlquist's results [1] for the two-dimensional KdV equation generating a large family of explicit solutions depending on functional parameters. This family may be fibered into parts invariant with respect to Darboux transformation and corresponding to different choices of the starting solution.

### **Darboux transformation and explicit solutions of the ...**

evolution equations (1) and (2). Then by using the resulting Darboux transformation, some explicit solutions of the equations (1) and (2) are presented from its trivial solutions in section 3. 2. DARBOUX TRANSFORMATION It is known that Darboux transformation is a useful tool to solve soliton equations by which explicit solutions of

### **DARBOUX TRANSFORMATION AND EXPLICIT SOLUTIONS FOR TWO NEW ...**

Explicit solutions are derived via the Darboux transformation. Structures of those solutions are shown graphically, which might be helpful to understand some physical processes in fluids, plasmas, and optics. PACS numbers: 03.65.Ge, 05.45.Yv Key words: Darboux transformation, discretized modified Korteweg-de Vries lattice equation, explicit solu-

### **Darboux Transformation and Explicit Solutions for ...**

3.2 Darboux transformation and soliton solutions 108 3.2.1 Darboux transformation 108 3.2.2 u(N) case 110 3.2.3 Soliton solutions 111 3.3 A reduced system on  $R^n$  116 4. SURFACES OF CONSTANT CURVATURE, ... Getting explicit solutions is usually a difficult task. Only in certain special cases can the solutions be written down explicitly. However,

### **DARBOUX TRANSFORMATIONS IN INTEGRABLE SYSTEMS**

Namely, the form of and as a function of the solutions defines the Darboux transformation. Presently (1998), the most general form of Darboux's theorem is given by V.B. Matveev for associative rings. The formulation of this theorem contains the natural generalization of the Darboux transformation in the spirit of the classical approach of G. Darboux.

### **Darboux transformation - Encyclopedia of Mathematics**

There are many methods to obtain explicit solutions of nonlinear evolution equations, such as the inverse scattering transformation (IST) [1], Bäcklund transformation [2], Darboux transformation [3], Painlevé analysis method [4], etc. [5-8]. Among these methods, DT is a useful method which is a special gauge transformation trans-

### **N-Fold Darboux Transformation for a Nonlinear Evolution ...**

Backlund and Darboux Transformations" Geometry and Modern Applications in Soliton Theory C. ROGERS Professor of Applied Mathematics The University of New South Wales W.K. SCHIEF Queen Elizabeth II, ARC Research Fellow ... 5.7 An Explicit Permutability Theorem for the Vector

### **Backlund and Darboux Transformations Geometry and Modern ...**

Many explicit exact methods have been introduced in literature [7-21]. Some of them are generalized Miura transformation, Darboux transformation, Cole-Hopf transformation, Hirota's dependent variable transformation, the inverse scattering transform and the B□

### **V. B. Matveev and M. A. Salle, Darboux Transformations and ...**

There are many methods to obtain explicit solutions of nonlinear evolution equations, such as the inverse scattering transformation (IST) [1], Bäcklund transformation [2], Darboux transformation [3], Painlevé analysis method [4], etc. [5-8]. Among these methods, DT is a useful method which is a special gauge transformation transforming a linear problem into itself.

### **1. Introduction - Scientific Research Publishing**

The first is a series of introductory pedagogical lectures presented by leading experts in the field. They are devoted respectively to Backlund transformations of Painleve equations, to the dressing method and Backlund and Darboux transformations, and to the classical geometry of Backlund transformations and their applications to soliton theory.

### **Bäcklund and Darboux Transformations: The Geometry of ...**

detached method,21 Painleve analysis,22 Darboux transformation,23{27 and so forth.28{33 Among the aforementioned methods, the Darboux transformation is one of the powerful and direct methods to investigate explicit solutions.34 In this paper, we will study the DT and explicit solutions of the modified Volterra lattice35:  $p_n; t = (p_2 n + c)(p_{n+1} \dots$

### **N-fold Darboux transformation and conservation laws of the ...**

Research Article Darboux Transformation and Explicit Solutions for a Generalized Sawada-Kotera Equation Guo-LiangHe 1 and TingSu 2 Department of Mathematics and Information Science, Zhengzhou University of Light Industry, Zhengzhou , China Department of Mathematics, Henan Institute of Engineering, Zhengzhou , China

### **Research Article Darboux Transformation and Explicit ...**

We construct an analytical and explicit representation of the Darboux transformation (DT) for the Kundu-Eckhaus (KE) equation. Such solution and n-fold DT  $T_n$  are given in terms of determinants whose entries are expressed by the initial eigenfunctions and seed solutions. Furthermore, the formulae for the higher order rogue wave (RW) solutions of the KE equation are also obtained by using the ...

### **The Darboux transformation of the Kundu-Eckhaus equation ...**

Bäcklund and Darboux Transformations This book describes the remarkable connections that exist between the classical differential geometry of surfaces and modern soliton theory. The authors

explore the extensive body of literature from the nineteenth and early twentieth centuries by such eminent geometers as Bianchi, Darboux, Bäcklund,

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