CURRICULUM VITAE

Baofeng Feng

School of Mathematical and Statistical Sciences
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Education

UNIVERSITY	MAJOR	DEGREE & DATE
Tsinghua University, China	Physics & Mathematics	Double B.S., 1989
Nagoya University, Japan	Computational Mathematics	M.S., 1997
Kyoto University, Japan	Engineering/Applied Mathematics	Ph. D., 2000

Employment

TITLE	EMPLOYER	DATE(S)
Professor	School of Mathematical & Statistical Sciences The University of Texas-Rio Grande Valley	Sep. 2015 – Present
Professor	Mathematics Department The University of Texas-Pan American	Sep. 2013 – Aug. 2015
Associate Professor	Mathematics Department The University of Texas Pan American	Sep. 2007 -Aug. 2013
Assistant Professor	Mathematics Department The University of Texas-Pan American	Sep. 2003- Aug.2007

Visiting Assistant Professor	Mathematics Department The University of Kansas	Jan. 2001 - Aug.2003
Research Fellow	Department of Computational Science The National University of Singapore	May 2000 - Dec. 2000

Memberships

- Member of American Mathematical Society (AMS)
- Lifetime member of Society of Industrial and Applied Mathematics (SIAM)

Main Research Interest

- Continuous and discrete integrable systems
- Scientific computing and numerical methods for partial differential equations (PDEs)
- Mathematical modeling in fluid, solid mechanics and nonlinear optics
- Nonlinear waves, pattern formation and perturbation methods
- Nonlinear optics and fiber-optic communications \

Honors, Fellowships & Awards

- Japanese Government Scholarship, 1998-2000
- Japanese Society for the Promotion of Science (JSPS) Research Fellow, Osaka University, June 6-July 26 2007
- Bridge Research Fellowship for JSPS, Osaka University, Dec. 2012-Jan. 2013
- Faculty Excellence Award in Research at College of Science, UTRGV, March 2018.

Grant Activities

- PI: Numerical studies on nonlinear evolution equations of water surface waves, The Japan Science Society No. 11-357M, **500,000JPY**, 1999-2000
- PI: Mathematical Modeling of Micro & Macro Behavior of Nonlinear Materials, the US Department of Defense (DoD), U.S. Army Research Office, W911NF-05-1-0029, **$240,000**, 2005-2009
- Co-PI: Conference on Nonlinear Waves and Integrable System, NSF grant (No. 1000037), **$26,880** with Dr. Virgil Pierce (PI), Dr. Kenichi Maruno (Co-PI), 2010.
- PI: Propagation of ultra-short optical pulses in birefringent material: integrable models, integrable discretizations and their applications, China Collaboration Research for Overseas Scholars, National Sceince Foundaation of China, No. 11428102, **200,000**RMB (~**$3,0400**), January 2015- December 2016.
- PI: NSF/CBMS Conference: Discrete Painleve Equations, NSF grant (No. 1543860), **$39,505** with Dr. Andras Balogh (Co-PI), Dec. 2015- Dec. 2017.
- PI: Mathematical models in nonlinear optics and their applications, Research Enhancement Seed Grant at COS, UTRGV, **$1,2171**, July 2017-Dec. 2018.
- PI: RUI: Mathematical analysis of several models in nonlinear optics, NSF grant (No. DMS-1715991), **$121,221**, Aug. 2017-July 2020.
- PI: Multi-component generalizations for several integrable nonlinear PDEs of the third-order in shallow water waves, China Collaboration Research for Overseas Scholars, National Science Foundation of China, No. 11728103, **180,000**RMB (~**$2,7300**), January 2018- December 2020
- Co-PI: Collaborative Research: Enhancing Diversity in the Mathematics Graduate Applicant Pool, NSF grant (No. DMS-1820771), **$239,713**, with Dr. Tim Huber (PI), Dr. Cristina Villalobos (Co-PI), Sep. 2018-Aug. 2021.
- Co-PI: Defect states in time and space modulated lattices, U.S. Department of Defense (DoD), U.S. Air Force for Scientific Research (AFOSR), W911NF2010276, $ 653,371, with Dr. Hamidzera Ramezani, July 31, 2020-July 30, 2023.

Publications in the past five years

1) Y. Chen, Bao-Feng, Feng, L, Ling, The robust inverse scattering method for focusing Ablowitz-Ladik equation on the non-vanishing background, submitted to ***J. Phys. A***.
2) Bao-Feng Feng, Liming Ling, Zuonong Zhu, A focusing and defocusing semi-discrete complex short pulse equation and its varioius soliton solutions, arXiv:1901.02388 2019
3) Bao-Feng Feng, L. Ling, The solitons and rogue waves of the coupled complex short pulse equation, submitted to ***Journal of Nonlinear Science***.
4) Barbara Prinari, A. David Trubatch, and Bao-Feng Feng. Inverse scattering transform for the complex short-pulse equation by a Riemann-Hilbert approach, ***European Phys Journal Plus*** 135 717(2020)
5) Junchao Chen, Bao-Feng Feng, Yongyang Jin, Gram determinant solutions to nonlocal integrable discrete nonlinear Schrodinger equations via the pair reduction, ***Wave Motion*** 93 102487 (2019)
6) Bao-Feng Feng, L. Ling, D. Takahashi, Multi-breather and high order rogue waves on the elliptic function background, ***Studies in Applied Mathematics,*** 142, (2020) 46-101.
7) Junchao Chen, Liangyuan Chen, Bao-Feng Feng, K. Maruno, High-order rogue waves of a long wave-short model of Newell type, ***Phys. Rev. E***. 100 (2019) 052216.
8) S. Sato, K. Oguma, T. Matsuo, B.-F. Feng, A robust numerical integrator for the short pulse equation near criticality, ***Journal of Computational and Applied Mathematics***, 361 (2019) 343-365.
9) Bao-Feng Feng, Mark J. Ablowitz, Xu-Dan Luo, Ziad H. Musslimani, General soliton solutions to the nonlocal nonlinear Schrödinger equation, ***Nonlinearity***, 31 (2018) 5385–5409.
10) Junchao Chen, Yong Chen, Bao-Feng Feng, Ken-ichi Maruno, and Yasuhiro Ohta, General High-order Rogue Waves of the (1+1)-Dimensional Yajima–Oikawa System, ***J. Phys. Soc. Jpn***, 87 (2018) 094007.
11) Junchao Chen, Bao-Feng Feng, Ken-ichi Maruno, and Yasuhiro Ohta, The Derivative Yajima–Oikawa System: Bright, Dark Soliton and Breather Solutions, ***Studies in Applied Mathematics***, 141 (2018) 145–185.
12) Mark J. Ablowitz, Bao-Feng Feng, Xu-Dan Luo, and Ziad H. Musslimani, Reverse Space-Time Nonlocal Sine-Gordon/Sinh-Gordon Equations with Nonzero Boundary Conditions, ***Studies in Applied Mathematics,*** 241 (2018) 267-307.
13) Mark J. Ablowitz, Bao-Feng Feng, Xu-Dan Luo, Ziad H. Musslimani, Inverse scattering transform for the nonlocal reverse space-time nonlinear Schrödinger equation with nonzero boundary conditions, ***Theoretical and Mathematical Physics,*** 196 (2018), 1241–1267.
14) Ching-Hao Yu, Bao-Feng Feng , Tony W. H. Sheu, Numerical solutions to a two-component Camassa-Holm Equation, ***Journal of Computational and Applied Mathematics***,316 (2018) 317-337.
15) Bao-Feng Feng, Yasuhiro Ohta, N-bright-dark soliton solution to a semi-discrete vector nonlinear Schrödinger equation, ***SIGMA*** 13 (2017) 071.
16) Bao-Feng Feng, Ken-ichi Maruno,Yasuhiro Ohta, The Degaperis-Procesi equation,its short wave model and the CKP hierarchy, ***Annals of Mathematical Sciences and Applications***, 2 (2017) 285-316.
17) Shoufeng Shen, Bao-Feng Feng, Yasuhiro Ohta, A modified complex short pulse equation of defocusing type, ***J. Nonlinear Mathematical Physics***, 24 (2017) 195-209.
18) Junchao Chen, Yong Chen, Bao-Feng Feng, Bilinear Bäcklund transformation, Lax pair and multi-soliton solution for a vector Ramani equation, ***Modern Physics Letters B***, 31(2017) 1750133.
19) Liming Ling, Bao-Feng Feng, Zuonong Zhu, General soliton solutions to a coupled Fokas-Lenells equation, ***Nonlinear Analysis: Real World Applications***, 33 (2017) 237-252.
20) Bao-Feng Feng, Ken-ichi Maruno,Yasuhiro Ohta,Integrable semi-discrete Degasperis-Procesi equation, ***Nonlinearity***, 30 (2017) 2246-2267.
21) Junchao Chen, Bao-Feng Feng, Yong Chen, Zhengyi Ma, General bright-dark soliton solution to (2+1)–dimensional multi-component long-wave-short-wave resonance interaction system, ***Nonlinear Dyn.***, 88 (2017) 1273-1288.
22) Bao-Feng Feng, Ken-ichi Maruno,Yasuhiro Ohta, A two-component generalization of the reduced Ostrovsky equation and its integrable semi-discrete analogue, ***J. Phys. A.***, 50 (2017) 055201

23) Bao-Feng Feng, Ken-ichi Maruno,Yasuhiro Ohta, Geometric formulation and multi-dark soliton solution to the defocusing complex short pulse equation, ***Studies in Applied Mathematics***, 138 (2016) 343-367.
24) Bao-Feng Feng, Liming Ling, Zuonong Zhu, Defocusing complex short-pulse equation and its multi-dark-soliton solution, ***Phys. Rev. E***, 93 (2016) 052227.
25) Liming Ling, Bao-Feng Feng, Zuonong Zhu, Multi-soliton, multi-breather and higher order rogue wave solutions to the complex short pulse equation, ***Physica D***, 327 (2016) 13-29.
26) Junchao Chen, Yong Chen, Bao-Feng Feng, Ken-ichi Maruno, Yasuhiro Ohta, Integrable discretizations of the coupled Yajima-Oikawa system, ***J. Phys. A*** 49 (2016) 165201 (19 pp).
27) Senyue Lou,Bao-Feng Feng, Ruoxia Yao, Muti-soliton solution to a two-component Hunter-Saxton equation, ***Wave Motion*** 65(2016) 17-28.
28) Shoufeng Shen, Bao-Feng Feng, Yasuhiro Ohta, From the Real and Complex Coupled Dispersionless Equations to the Real and Complex Short Pulse Equations, ***Studies in Applied Mathematics***, 136 (2016) 64–88.
29) Hengchun Hu, Xiao Hu,Bao-Feng Feng, Nonlocal Symmetry and Consistent Tanh Expansion Method for the Coupled Integrable Dispersionless Equation, Z***eitschrift für Naturforschung A***, 71 (2016) 235-240.
30) Bao-Feng Feng, Junchao Chen, Yong Chen, Ken-ichi Maruno, Yasuhiro Ohta, Integrable discretizations and self-adaptive moving mesh method for a coupled short pulse equation, ***J. Phys. A***, 48 (2015) 385202 (21pp).
31) Bao-Feng Feng, Ken-ichi Maruno,Yasuhiro Ohta, Integrable semi-discretization of a multi-component short pulse equation ***J. Math. Phys***., 56 (2015) 043502.
32) Bao-Feng Feng, Ken-ichi Maruno,Yasuhiro Ohta, Integrable discretizations of the reduced Ostrovsky equation, ***J. Phys. A***, 48 (2015) 135203.
33) Junchao Chen, Yong Chen, Bao-Feng Feng, Ken-ichi Maruno, Rational solution to two- and one-dimensional multi-component Yajima-Okawa sytems, ***Phys. Lett. A***, 379 (2015) 1510-1519.
34) Junchao Chen, Yong Chen, Bao-Feng Feng, Ken-ichi Maruno, General Mixed Multi-Soliton Solutions to One-Dimensional Multicomponent Yajima–Oikawa System, ***J. Phys. Soc. Jpn***., 84, (2015) 074001.
35) Junchao Chen, Yong Chen, Bao-Feng Feng, Ken-ichi Maruno, Multi-dark soliton solutions of the two-dimensional multi-component Yajima-Okawa sytems, ***J. Phys. Soc. Jpn***., 84 (2015) 034002.
36) Bao-Feng Feng, Complex short pulse and coupled complex short pulse equations, ***Physica D***, 297 (2015) 62-75.
37) Junchao Chen, Yong Chen, Bao-Feng Feng,Hanmin Zhu, Pfaffian-Type Soliton Solution to a Multi-Component Coupled Ito Equation, ***Chin. Phys. Lett***., 31 (2014) 110502.
38) Bao-Feng Feng, General N-soliton solution to a vector nonlinear Schrödinger equation, ***J. Phys. A***, 47 (2014) 355203.
39) Junchao Chen, Yong Chen, Bao-Feng Feng, Hanmin Zhu, Multi-component generalizations of the Hirota–Satsuma coupled KdV equation, ***Appl. Math. Lett***.,37 (2014) 15-21.
40) Bao-Feng Feng, Ken-ichi Maruno,Yasuhiro Ohta, Self-adaptive moving mesh schemes for short pulse type equations and their Lax pairs, ***Pacific Journal of Mathematics for Industry***, 6 (2014)

Professional Activities and Services

a. Conferences/Workshops Organized

- Japan Society for Promotion of Sciences (JSPS) AA Seminar, November 30-December 1, 2018.
- Scientific gathering: New Phenomenon in Discrete Systems, Cuernavaca, Mexico, December 9-20, 2017.
- NSF/CBMS conference: Discrete Painleve Equations, supported by NSF (grant No. 1543860) Edinburg, Texas, May 16-20, 2016.
- International Workshop on Integrable Systems-Mathematical Analysis and Scientific Computing, Taipei, October 17-21, 2015.

- International Conference "Symmetry plus Integrability: The First International Conference on Integrable Systems and Nonlinear Waves on the Gulf of Mexico" South Padre Island, TX, June 10-14, 2010

b. Scientific Committee Members for Conferences

- First China-Japan Joint Workshop on Integrable Systems, On the Occasion of Prof. Ryogo Hirota's 77th Birthday, Shaoxing, China, January 7-10, 2010.
- Second China-Japan Joint Workshop on Integrable Systems, Kyoto, Japan, March 16-19, 2013
- Third China-Japan Joint Workshop on Integrable Systems, Xian, China, August 17-20, 2016
- The 10th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, GA, March 29-April 1, 2017.
- The 9th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, GA, April 1-4, 2015.
- The 8th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, GA, March, 2013.
- The 7th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, GA, April 4-7, 2011.
- The 6th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, GA, March 23-26, 2009.
- The 5th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, April, 2007.

c. Conference Special session/Minisymposium organized recently

- Co-organizer, Mini-symposium "Integrable systems and beyond", at 9th International Congress on Industrial and Applied Mathematics, Valencia, Spain, July 15-19, 2019.
- Co-organizer, Mini-symposium "Theory and computation of nonlinear waves", at International Conference on Scientific Computation and Differential Equations, Innsbruck, Austria, July 22-26, 2019.
- Co-organizer, Special Session "Integrable systems and applications", at the 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Taipei, Taiwan, July 5-9, 2018.
- Co-organizer, Special session "Integrable systems and applications", at the AMS Fall Central Sectional Meeting, Denton, TX, September 9-10, 2017.
- Co-organizer, Special session "Integrable systems and the geometry of curves and surfaces," at the 10th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, GA, March 29-April 1, 2017.
- Co-organizer, special session, Theoretical and numerical aspects of integrable systems, at the fourth International Conference: Nonlinear Waves—Theory and Applications, June 25-28, Beijing, 2016.
- Co-organizer, Special session, "Structure-preserving numerical methods for Hamiltonian PDEs ," 8th International Congress on Industrial and Applied Mathematics, Beijing, August 10-14, 2015.
- Co-organizer, Special session "Applications of Discrete and Continuous Integrable System ," at the 9th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, GA, April 1-4, 2015.
- Co-organizer, Minisymposium "Algebraic Aspects of Integrable Systems and Applications," at SIAM conference on nonlinear waves and coherent structures, Cambridge, UK, August, 11-14, 2014.
- Co-organizer, Special session "Discrete Integrable System and Painleve Equation ," at the 8th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, GA, March, 2013.
- Co-organizer, Special session "Numerical Methods for Hamiltonian PDEs," at the third International Conference: Nonlinear Waves—Theory and Applications, June 12-15, Beijing, 2013.
- Co-organizer, Special session "Symmetry and Integrability of discrete and ultradiscrete systems," 7th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, GA, April 4-7, 2011.

- Co-organizer for a special session "Nonlinear Evolution Equation of Mathematical Physics" at the 8th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, Dresden, Germany in May 25-28, 2010
- Co-organizer, Special Session "Nonlinear Waves: Computations and Applications" at International Conference on Scientific Computation and Differential Equations, Beijing, China, May 25-29, 2009.
- Co-organizer, Special session "Discrete and Ultradiscrete Integrable Systems" 6th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, GA, March 23-26, 2009.
- Co-organizer, Special session "Algebraic and Geometric Aspects of Integrable Systems" with Drs. Kenichi Maruno, Zhijun Qiao, Wen-xiu Ma at AMS meeting, San Diego, January, 2008.
- Organizing committee member, Texas Section Meeting of the Mathematical Association of America, Edinburg, TX, April, 2007.
- Co-organizer, Special session "Advances in Theoretical and Numerical Methods of Discrete Systems" 5th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, April, 2007.
- Co-organizer, Special session "Continuous and Discrete Integrable System and their Applications," with Drs. Zhijun Qiao and Wen-xiu Ma at AMS meeting, New Orleans, January, 2007.

d. Journals served as the refrees/reviewers for the following journals

- Journal of Computation Physics, Journal of Computational and Applied Mathematics, Numerical Methods for Partial Differential Equations, Proceeding of the Royal Society A, Applied Mathematics Letters, Soliton, Chaos & Fractals, Studied in Applied Mathematics, Wave Motion, J. Physics A, Physical Review E, J. Mathematical Physics, Mathematics and Computers in Simulation, Physics Letters A, Physics Script, SIGMA, Nonlinear Dynamics, Modern Physics Letters B, Computers and Mathematics with Applications, European Physics Letters, Physics A, Physic D, Chaos, Optik – International Journal for Light and Electron Optics, Annals of Mathematical Sciences and Applications, International Journal of Nonlinear Science, Acta Mathematica Scientia, Zeitschrift für Naturforschung A, Science China Mathematics, Communications in Computational Physics, Computer Physics Communications, Int. J. Bifurcation and Chaos.