Fudong Wang, Ph.D. Candidate

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Education

2015 – Now	**Ph.D., Pure and Applied Math, University of South Florida** GPA: 3.84/4. Dissertation: *Long-time asymptotics for the AKNS hierarchy of MKdV-type equations with defocusing/focusing reductions in some L^2 Sobolev spaces.* Advisor: *Wen-Xiu Ma*
2011 – 2015	**B.S. Pure and Applied Math, Zhejiang University of Technology** GPA:4.7/5 Thesis: *Painleve analysis to some nonlinear PDEs.* Advisor: *Shoufeng Shen*

Research Interests

Current	Matrix Riemann-Hilbert problem, Inverse scattering method, $\bar{\partial}-$steepest descent method, Asymptotic analysis, Singular integral equations.
Future	Orthogonal Polynomial, Random Matrices, Hilbert transform.

Research Publications

Journal Articles

1 Ma, W. X., Huang, Y. H., & Wang, F. (2020). Inverse scattering transforms and soliton solutions of nonlocal reverse-space nonlinear Schrödinger hierarchies(accepted). *Studies in Applied Mathematics*.

2 Sun, Y., & Wang, F. (2020). N soliton solutions and long-time asymptotic analysis for a generalized complex hirota-satsum coupled KdV equation(accepted). *Applied Mathematics Letters*.

3 Wang, F., & Ma, W. X. (2020a). Lump solutions to nonlinear PDEs involving Hirota derivative $D_t^2 D_x D_y$. *Modern Physics Letters B*, 2050197. Publisher: World Scientific Publishing Co.
 🔗 doi:10.1142/S0217984920501973

4 Ren, B., He, Z. W., Sun, Y. L., & Wang, F. (2019). Dynamics of Mixed Lump-Soliton Solutions According to a (2+1)-Dimensional Coupled Nonlinear Partial Differential Like Equation. *Journal of the Korean Physical Society*, *74*, 744–750. 🔗 doi:10.3938/jkps.74.744

5 Yu, J., Wang, F., Ma, W. X., Sun, Y., & Khalique, C. M. (2019). Multiple-soliton solutions and lumps of a (3+1)-dimensional generalized KP equation. *Nonlinear Dynamics*, *95*(2), 1687–1692.
 🔗 doi:10.1007/s11071-018-4653-8

Manuscripts submitted

1 Ma, W. X., Huang, Y., & Wang, F. (2020). *Binary Darboux transformation for nonlocal reverse-space nonlinear Schrödinger equations.*

2 Wang, F., & Ma, W. X. (2020b). *A dbar-steepest descent method for oscillatory riemann-hilbert problems.*

3 Wang, F., & Ma, W. X. (2020c). *Long-time asymptotic for the fifth order MKdV equation.*

Academic Activities

Conferences

Dec, 2019   ▮   International Conference on Nonlinear Mathematical Physics, Zhoushan, Zhejiang, China.

Nov, 2019   ▮   AMS Fall Southeastern Sectional Meeting, University of Florida, Gainesville, FL

May, 2019   ▮   The 5th International Workshop on Nonlinear and Modern Mathematical Physics, Honolulu, HI.
Presentation: *Long-time asymptotics for the AKNS system.*

Oct, 2018   ▮   AMS Fall Central Sectional Meeting, University of Michigan, Ann Arbor, MI (with traveling grant)

Analysis Seminar Talks

Oct, 2020   ▮   Asymptotics of oscillatory matrix Riemann-Hilbert problems by dbar-steepest descent method

Differential Equations Seminar Talks

Sep, 2020   ▮   Derivation of the NLS equation from Maxwell's Equations

Apr, 2020   ▮ L^2-bijectivity of scattering and inverse scattering in some Sobolev spaces.

Oct, 2019   ▮ $\bar{\partial}$ method and its application to nonlinear evolution equations.

Sep, 2019   ▮   Inverse scattering and N-soliton solution for the nonlocal nonlinear Schrödinger equation.

Apr, 2019   ▮   Riemann-Hilbert problems for two-component coupled mKdV systems.

Mar, 2019   ▮   Asymptotic solutions of the nonlinear Schrödinger equation based on conservation laws.

Oct, 2018   ▮   The emergence of solitons of the Korteweg-de Vries Equation from sufficiently decaying initial conditions.

Apr, 2018   ▮   Nonlinear steepest descent method for long-time asymptotic for MKdV.

Mar, 2017   ▮   Riemann-Hilbert problems with zeros.

Gradute Math@USF Seminar Talks

May, 2020   ▮   An elementary introduction to Fredholm Determinant.

Mar, 2020   ▮   Introduction to the Riemann-Hilbert Problem in L^p-space.

Oct, 2019   ▮   What is ... inverse scattering?

Sep, 2019   ▮   An Introduction to the Riemann-Hilbert Problems on the real line.

Jun, 2019   ▮   Some fundamental formulas(Plemelj-Privalov) on the Cauchy-type integrals.

Seminar Organizer

2019 – Now   ▮   Graduate Math @ USF Seminar, as co-Founder (with Nathan Hayford).
Website: 🔗 https://usfmath.github.io
Achievements: *Hosted more than 30 seminars.*

Employment History

2018 – Now   ▮   **Graduate Teaching Associates,** Department of Mathematics and Statistics, USF

2015 – 2018   ▮   **Graduate Instructional Assistants,** Department of Mathematics and Statistics, USF

Scholarships and Awards

Scholarships

2017, 2019   **Fred L. and Helen M. Tharp Scholarship**, USF

2015 – now   **Teaching Assistantships**, USF

2012 – 2014   **The First Prize Scholarship**, ZJUT

Awards

2013   **Meritorious Winner**, Mathematical Contest In Modeling(MCM)

2012   **First Prize**, National College Mathematics Competition in Zhejiang Province

Skills

Languages   English, Mandarin Chinese

Coding   Maple, Mathematica, Matlab, Python, C, R, LaTeX, …

Web Dev   Html, css, Hugo, Jekyll, Git

Teaching Experience

2015 – 2018   SMART Lab, ACADEMIC SUCCESS CENTER, USF

As a Grader

- MAC 2281 — ENGINEERING CALCULUS I
- MAP 2302 — DIFFERENTIAL EQUATIONS
- MAC 2282 — ENGINEERING CALCULUS II
- MAC 2312 — CALCULUS II
- MAC 2283 — ENGINEERING CALCULUS III
- COP 4313 — SYMBOLIC COMPUTATIONS IN MATHEMATICS
- MAD 4401 — NUMERICAL ANALYSIS I
- MAA 4212 — INTERMEDIATE ANALYSIS II
- MAP 4341 — INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS

As an Instructor

- MAC 2312 — CALCULUS II
  Course content includes: *Integrals, Techniques of Integration, Applications of Integration, Series.*