

Zechuan Zhang

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EDUCATION

- **Doctorate in Pure Mathematics** Sept 2017 - June 2022
School of Mathematical Sciences, Fudan University, Shanghai, China
Advisor: Engui Fan
- **Bachelor's in Mathematics and Applied Mathematics** Sept 2013 - June 2017
School of Mathematical Sciences, Inner Mongolia University, Hohhot, China

ACADEMIC EXPERIENCE

- **University at Buffalo, State University of New York, Department of Mathematics**
Visiting Assistant Professor Aug 2022 - Present

RESEARCH INTERESTS

- Nonlinear wave equations, solitons and integrable systems, inverse scattering transform, spectral theory of differential operators, long-time asymptotics.

PUBLICATIONS

Published/Accepted

1. Taiyang Xu, Zechuan Zhang and Engui Fan, "On the Cauchy problem of defocusing mKdV equation with finite density initial data: long time asymptotics in solitonless regions", *J. Differential Equations*, 372, 55–122 (2023)
2. Zechuan Zhang and Engui Fan, "Inverse scattering transform and multiple high-order pole solutions for the Gerdjikov-Ivanov equation under the zero/nonzero background", *Z. Angew. Math. Phys.* 72, no. 4, Paper No. 153, 25 pp. (2021)
3. Zechuan Zhang and Engui Fan, "Inverse scattering transform for the Gerdjikov-Ivanov equation with nonzero boundary conditions", *Z. Angew. Math. Phys.* 71, no. 5, Paper No. 149, 28 pp. (2020)

Submitted

4. Zechuan Zhang, Taiyang Xu and Engui Fan, "On the asymptotic stability of N-soliton solutions for the defocusing mKdV equation with finite density type initial data: without stationary phase points on jump contour", arXiv: 2108.03650 [math.AP], submitted to *J. Differential Equations* (2023)
5. Gino Biondini and Zechuan Zhang, "Spectral theory for self-adjoint Dirac operators with periodic potentials and inverse scattering transform for the defocusing nonlinear Schrödinger equation with periodic boundary conditions", arXiv: 2311.18127 [math.AP], submitted to *Comm. Pure Appl. Math.* (2023)

In preparation

6. Gino Biondini, Barbara Prinari and Zechuan Zhang, "Global existence for the Maxwell-Bloch system with inhomogeneous broadening"

PRESENTATIONS

- 2023 AMS Fall Eastern Sectional Meeting, session on *Nonlinear Wave Equations and Integrable Systems* Sept 2023

PROFESSIONAL SERVICE

- Journal reviewer:
 - Studies in Applied Mathematics May 2023
 - The European Physical Journal Plus May 2023

TEACHING

- **State University of New York at Buffalo, Department of Mathematics**
 - MTH 306, “Introduction to Differential Equations” Spring 2024
 - MTH 241, “Calculus III” Fall 2023
 - MTH 306, “Introduction to Differential Equations” Spring 2023
- **Fudan University, Department of Mathematics**
 - “Recitation of Calculus II” Spring 2018
 - “Recitation of Calculus I” Fall 2017