

# Shiwu Yang

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## CONTACT INFORMATION

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## EMPLOYMENT

- 2022-, Associate Professor, Peking University;
- 2016-2022, Assistant Professor, Peking University;
- 2013-2016, Senior Research Associate, University of Cambridge.

## EDUCATION BACKGROUND

- Ph.D. in Mathematics, Princeton University, 2013;  
Thesis Advisor: [Igor Rodnianski](#),
- B.S. in Mathematics, Peking University, 2008.

## RESEARCH INTERESTS

Analysis, Partial Differential Equations, General Relativity.

## PUBLICATIONS AND PREPRINTS

1. Wei Dai and Shiwu Yang, [Characteristic initial value problem for nonlinear wave equation with singular initial data](#), arXiv:2401.17662.
2. Dongyi Wei and Shiwu Yang, [Asymptotic decay for the Chern-Simons-Higgs equations](#), arXiv:2401.13949.
3. He Mei and Dongyi Wei and Shiwu Yang, [Asymptotic decay for defocusing semilinear wave equations on Schwarzschild spacetimes](#), arXiv:2306.10667.
4. Wei Dai and He Mei and Dongyi Wei and Shiwu Yang, [The Maxwell-Klein-Gordon equation with scattering data](#), arXiv:2302.08732.
5. Dongyi Wei and Shiwu Yang and Pin Yu, [On the global dynamics of Yang-Mills-Higgs equations](#), **Comm. Math. Phys.**, 405 (2024), no. 1.
6. Dongyi Wei and Shiwu Yang, [On the defocusing semilinear wave equations in three space dimension with small power](#), **IMRN**, 2022, no. 24.
7. Shiwu Yang, [Pointwise decay for semilinear wave equations in  \$\mathbb{R}^{1+3}\$](#) , **Journal of Functional Analysis**, 283 (2022), no. 2.
8. Shiwu Yang, [Global behaviors of defocusing semilinear wave equations](#), **Ann. Sci.Éc. Norm. Supér. (4)**, 55 (2022), no. 2, 405-428.
9. Dongyi Wei and Shiwu Yang, [On the global behaviors for defocusing semilinear wave equations in  \$\mathbb{R}^{1+2}\$](#) , **Analysis&PDE**, 15 (2022), no. 1, 245-272.
10. Dongyi Wei and Shiwu Yang, [On the 3D Relativistic Vlasov-Maxwell System with large Maxwell field](#), **Comm. Math. Phys.**, 383 (2021), no. 3, 2275-2307.
11. Dongyi Wei and Shiwu Yang, [Asymptotic decay for defocusing semilinear wave equations in  \$\mathbb{R}^{1+1}\$](#) , **Ann. PDE**, 7 (2021), no. 1, 9.

12. Allen Fang, Qian Wang and Shiwu Yang, Global solution for Massive Maxwell-Klein-Gordon equations with large Maxwell field, **Ann. PDE**, 7 (2021), no. 1, 3.
13. Sergiu Klainerman, Qian Wang and Shiwu Yang, Global solution for massive Maxwell-Klein-Gordon equations, **Comm.Pure Appl.Math**, 73(2020), no.1, 63-109.
14. Shiwu Yang and Pin Yu, On global dynamics of the Maxwell-Klein-Gordon equations, **Camb.J.Math**, 7(2019), no.4, 365-467.
15. Jonathan Luk, Sung-Jin Oh and Shiwu Yang, Dynamical black holes with prescribed masses in spherical symmetry, *Proceedings of the Seventh International Congress of Chinese Mathematicians*, Vol. II, 367-387, **Adv. Lect.Math**, 44(2019).
16. Garving Luli, Shiwu Yang and Pin Yu, On one-dimension semi-linear wave equations with null conditions, **Adv. Math.**, 329(2018), 174-188.
17. Jonathan Luk, Sung-Jin Oh and Shiwu Yang, Solutions to the Einstein-scalar-field system in spherical symmetry with large bounded variation norms, **Ann. PDE**, 4(2018), no.1.
18. Shiwu Yang, On global behavior of solutions of the Maxwell-Klein-Gordon equations, **Adv. Math.**, 326(2018), 495-520.
19. Shiwu Yang, Decay of solutions of Maxwell-Klein-Gordon equations with large Maxwell field, **Anal. PDE**, 9 (2016), no.8, 1829-1902.
20. Shiwu Yang, On the quasilinear wave equations in time dependent inhomogeneous media, **J. Hyperbolic Differ. Equ.**, 13 (2016), no. 2, 273-330.
21. Shiwu Yang, Global solutions of nonlinear wave equations with large energy, **Selecta Math. (N.S.)**, 21 (2015), no. 4, 1405-1427.
22. Shiwu Yang, Global stability of solutions to nonlinear wave equations, **Selecta Math. (N.S.)**, 21 (2015), no. 3, 833-881.
23. Shiwu Yang, On the geodesic hypothesis in general relativity, **Comm. Math. Phys.**, 325 (2014), no. 3, 997-1062.
24. Shiwu Yang, Global solutions of nonlinear wave equations in time dependent inhomogeneous media, **Arch. Rational Mech. Anal.**, 209 (2013), no. 2, 683-728.

#### TEACHING

- Spring 2024, *Introduction to Analysis and PDE*, Peking University
- Fall 2023, *Calculus III*, Peking University
- Spring 2023, *Calculus II*, Peking University
- Fall 2022, *Calculus I*, Peking University.
- Spring 2022, *Hyperbolic Partial Differential Equations*, Peking University.
- Fall 2021, *Functions of Real variables*, Peking University.
- Spring 2021, *Hyperbolic Partial Differential Equations*, Peking University.
- Fall 2020, *Functions of Real variables*, Peking University.
- Spring 2020, *Hyperbolic Partial Differential Equations*, Peking University.
- Fall 2019, *Functions of Real variables*, Peking University.
- Spring 2019, *Hyperbolic Partial Differential Equations*, Peking University.
- Fall 2018, *Calculus C*, Peking University.

- Spring 2018, *Partial Differential Equations*, Peking University.
- Fall 2017, *Calculus III*, Peking University.
- Spring 2017, *Advanced Calculus*, Peking University.

HONORS AND  
AWARDS

- 2020 Alibaba Damo Young Fellow.
- Gold Medal in 45th International Mathematical Olympiad, Athens, Greece, 2004.
- Mingde Fellowship, Peking University, 2004-2008.