

# Baoping Liu

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- CONTACT INFORMATION Beijing International Center for Mathematical Research *E-mail:* [baoping@math.pku.edu.cn](mailto:baoping@math.pku.edu.cn)  
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Peking University *Phone:* (+86)10-62744115  
Beijing, China, 100871
- APPOINTMENTS **2021 -** Associate Professor at Beijing International Center for Mathematical Research  
**Peking University**, Beijing, China  
**2015 - 2021** Assistant Professor at Beijing International Center for Mathematical Research  
**Peking University**, Beijing, China  
**2012 - 2015** Dickson Instructor at **University of Chicago**
- EDUCATION **2006 - 2012 University of California, Berkeley**, Berkeley, California USA  
Ph.D. Mathematics.  
Advisor: Daniel Tataru  
**2002 - 2006 Peking University**, Beijing, China  
Bachelor of Science in Mathematics.
- GRANTS **NSFC 12071010**, Principal Investigator, 2021.1 - 2024.12  
**Thousand Young Talents**, Principal Investigator, 2018.1 -  
**NSFC 11601017**, Principal Investigator, 2017.1 - 2019.12  
**NSFC 11631002**, Member, 2017.1 - 2021.12
- RESEARCH INTERESTS Nonlinear partial differential equations, harmonic analysis, dynamical system, mathematical physics.
- RESEARCH PAPERS [12] F. Klaus, H. Koch and B. Liu, *Well-posedness for the KdV hierarchy*. In preparation  
[11] B. Liu and A. Soffer, *The Large Times Asymptotics of NLS type Equations*. In preparation  
[10] B. Liu and A. Soffer, *A General Scattering theory for Nonlinear and Non-autonomous Schrödinger Type Equations- A Brief description* .  
ArXiv:2012.14382  
[9] Z. Li and B. Liu, *On Threshold Solutions of equivariant Chern-Simons-Schrödinger Equation*.  
accepted by Annales de l'Institut Henri Poincaré C , Analyse Non Linéaire.  
[8] H. Jia, B. Liu, W. Schlag and G. Xu. *Global center stable manifold for the defocusing energy critical wave equation with potential*.  
Amer. J. Math. 142 (2020), no. 5, 1497–1557.  
[7] H. Jia, B. Liu, W. Schlag and G. Xu. *Generic and non-generic behavior of solutions to the defocusing energy critical wave equation with potential in the radial case*.  
International Mathematics Research Notices, Vol. 2017, No. 19, pp. 5977-6035.

- [6] B. Liu and P. Smith. *Global wellposedness of the equivariant Chern-Simons-Schrödinger equation*. Rev. Mat. Iberoam. 32 (2016), no. 3, 751–794.
- [5] C. Kenig, A. Lawrie, B. Liu and W. Schlag. *Channels of energy for the linear radial wave equation*. Adv. Math. 285 (2015), 877–936
- [4] C. Kenig, A. Lawrie, B. Liu and W. Schlag. *Stable soliton resolution for exterior wave maps in all equivariance classes*. Adv. Math. 285 (2015), 235–300.
- [3] H. Jia, B. Liu and G. Xu. *Long time dynamics of defocusing energy critical 3 + 1 dimensional wave equation with potential in the radial case*. Comm. Math. Phys. 339 (2015), no. 2, 353–384.
- [2] B. Liu, *A-priori bound for KdV below  $H^{-\frac{3}{4}}$* . J. Funct. Anal. 268 (2015), no. 3, 501–554.
- [1] B. Liu, P. Smith and D. Tataru. *Low regularity solution for Chern-Simons-Schrödinger equation* International Mathematics Research Notices, Volume 2014, issue 23, pages 6341-6398

### Proceedings and Reports

Low Regularity Local Wellposedness of Chern-Simons-Schrödinger System *Oberwolfach Reports* Volume 10, Issue 3, (2013), 2354–2356.

### VISITS

January 2020, University of Bonn (2 weeks)  
 November 2019, Rutgers University (2 weeks)  
 March 2018, Yamagata University and Tohoku University (one week)  
 November 2017, Yonsei University, Korea (one week)  
 August 2017, Fields Institute, Canada (three weeks)  
 April 2017, Bielefeld University, Germany (two weeks)  
 July 2016, Institut des Hautes Études Scientifiques, France (two weeks)  
 November 2015, Mathematical Sciences Research Institute, Berkeley, USA (one month)  
 July 2014, Hausdorff center of Mathematics, Bonn, Germany (one month)  
 July 2009, Pacific Institute for the Mathematical Sciences, Vancouver, Canada (3 weeks)  
 June 2009, L’Institut Henri Poincare, Paris, France (one month)

### PRESENTATIONS

Workshop in Analysis PDE, Beihang University, November 2020  
 Tianyuan PDE seminar (Online), Wuhan University, July 2020  
 11th Itinerant workshop in Bonn, University of Bonn, January, 2020  
 12th International ISAAC Congress, University of Aveiro, July, 2019  
 The 11th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, University of Georgia, April 2019  
 Joint International Meeting of the Chinese Mathematical Society and the American Mathematical Society, Shanghai, June 2018

Yamagata-Peking-Tohoku Joint workshops for harmonic analysis and PDE, Japan, March 2018  
 Analysis and PDE seminar, Yonsei University, November 2017  
 Geometry seminar, Nanjing University, October 2017  
 PDE seminar, Nanjing Normal University, October 2017  
 Workshops on PDE, Chinese Mathematical Society 2017 Annual Conference, October 2017  
 Workshops on Geometric analysis and hyperbolic equations, Academy of Mathematics and System Sciences, Beijing, China, July 2017  
 PDE Seminar, Bielefeld University, Germany, April 2017  
 Analysis and PDE seminar, Xiamen Univeristy, December 2016  
 Analysis and PDE Seminar, Tsinghua University, Beijng, China, April 2016  
 Analysis and PDE seminar, University of California, Berkeley, USA, Nov 2015  
 Analysis seminar, Beijing Normal University, Beijing, China, Oct 2015  
 PDE Seminar, University of Science and Technology, He Fei, China, Oct 2015  
 Workshop ‘Longtime Behavior of Nonlinear Waves’, Bielefeld University, June 2015  
 Colloquium, University of Southern California, Dec 2014  
 Calderon-Zygmund Analysis Seminar, University of Chicago. October 2014  
 Closing workshop, Hausdorff Trimester Program ‘Harmonic Analysis and PDE’ Aug 2014  
 Colloquium, Georgia Southern University, Nov 2013  
 PDE seminar, Peking University, Sep 2013  
 Workshop:Nonlinear Waves and Dispersive Equations, Oberwolfach, August 2013  
 Analysis Seminar, Wisconsin Madison. March 2013  
 Analysis Seminar, Northwestern. January 2013  
 Calderon-Zygmund Analysis Seminar, University of Chicago.October 2012  
 Analysis seminar, UC Irvine, March 2012  
 AMS meeting at the University of Hawaii, Honolulu, March 2012  
 Analysis and PDE Seminar, John Hopkins University, November 2011  
 Student Harmonic Analysis and PDE Seminar, Berkeley, Sp2011, Fall 2010, Fall 2009, Spring 2009

CONFERENCE  
 ATTENDED

Workshop in Analysis PDE, Beihang University, November 2020  
 11th Itinerant workshop in Bonn, University of Bonn, Janurary, 2020  
 12th International ISAAC Congress, University of Averio, July, 2019  
 The 11th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, University of Georgia, April 2019  
 Joint International Meeting of the Chinese Mathematical Society and the American Mathematical Society, Shanghai, June 2018  
 Yamagata-Peking-Tohoku Joint workshops for harmonic analysis and PDE, Japan, March 2018  
 Focus Program on Nonlinear Dispersive Partial Differential Equations and Inverse Scattering, Fields Institute, Canada, August 2017  
 Workshops on Geometric analysis and hyperbolic equations, Academy of Mathematics and System Sciences, Beijing, China, July 2017  
 Nonlinear Waves and Dispersive Equations, Bonn, Oberwolfach, June 2017  
 Nonlinear waves, Institut des Hautes Études Scientifiques, France, July 2016

Longtime Behaviour of Nonlinear Waves, Bielefeld University, June 2015  
 Hausdorff Trimester Program ‘Harmonic Analysis and PDE’ August 2014  
 Nonlinear Waves and Dispersive Equations, Bonn, Oberwolfach, August 2013  
 NSF-CBMS Regional Research Conference in the Mathematical Sciences, KSU, June 2013  
 AMS Spring 2012 Western Sectional Meeting, University of Hawaii, Honolulu, March, 2012  
 CBMS Conference on Global Harmonic Analysis, Kentucky Summer 2011  
 Southern California Analysis and PDE conference, UCLA, November 2010  
 Nonlinear waves and dispersive equations, Oberwolfach, September 2010  
 The 13th Rivière-Fabes Symposium on Analysis and PDE, University of Minnesota, April 2010  
 Hot Topics: Black Holes in Relativity, MSRI, Sep 2009  
 Nonlinear Dispersive and Geometric Evolution Problems, PIMS Workshop, UBC, August 2009  
 Analysis of nonlinear wave equations and applications in engineering, Banff, August 9-14, 2009  
 Dispersive Equations and Nonlinear Waves, Institut Henri Poincaré, June 2009  
 AMS Section Meeting: Special Session on Nonlinear Dispersive Equations, San Francisco, April 2009  
 Carolina Meeting on Harmonic Analysis and PDE, UNC, Chapel Hill, Jan 2009  
 Red Raider Mini-symposium: Non-linear Analysis, PDEs and Applications, Texas Tech U., Oct 2009  
 Analysis on Singular Spaces, MSRI, Aug - Dec 2008  
 Microprogram on Nonlinear Partial Differential Equations, MSRI, summer 2007.

AWARDS	<b>2020</b>	HuangTingFang/XinHe Scholarship, Peking University
	<b>2017</b>	ShenTong teaching fellowship, Peking University
	<b>2010</b>	Outstanding Graduate Student Instructor Award, UC Berkeley.
	<b>2006-2007</b>	Simons Graduate Fellowship, UC Berkeley

TEACHING  
EXPERIENCE

Teaching at Peking University

<b>Spring 2021</b>	Functional Analysis
<b>Fall 2020</b>	Calculus III (For EECS)
<b>Spring 2020</b>	Calculus II (For EECS)
<b>Fall 2019</b>	Real analysis (graduate level)
<b>Spring 2019</b>	Topics in PDE and Analysis
<b>Fall 2018</b>	Calculus I (For EECS major)
<b>Spring 2018</b>	Calculus II (For business major)
<b>Fall 2017</b>	Linear Algebra (For economy major)
<b>Fall 2016</b>	Calculus I (For biology major)
<b>Spring 2016</b>	Calculus II (For biology major)

Teaching at University of Chicago

<b>Spring 2015</b>	Math16300 Honor Calculus, two sections, Instructor
<b>Fall 2014</b>	Math16100 Honor Calculus, two sections, Instructor

**Winter 2014** Math20400 Real Analysis, two sections, Instructor  
**Fall 2013** Math20300 Real Analysis, two sections, Instructor  
**Spring 2013** Math20500 Real Analysis, Math16300 Honor Calculus 3, Instructor  
**Winter 2013** Math20400 Real Analysis, Instructor  
**Fall 2012** Math20300 Real Analysis, Instructor

Teaching at University of California, Berkeley

**Summer 2012** Math185, Complex Analysis, Instructor  
**Spring 2012** Math16B, Analytical Geometry and Calculus with Professor J. Harrison  
**Spring 2011** Math16B, Analytical Geometry and Calculus with Professor D. Sarason  
**Fall 2009** Math16B, Analytical Geometry and Calculus with Professor J. Silver  
**Spring 2009** Math54, Linear Algebra and Differential Equations with Professor J. Wagoner  
**Spring 2008** Math54, Linear Algebra and Differential Equations, with Professor A. Chorin  
**Fall 2007** Math1A, Calculus with Professor Ole H. Hald

MENTORING Undergraduate: Li Zhuolin(PhD at Oxford), Li Xiaodong(Master at Ecole Polytechnique), Li Zexing(Master at PKU)

Master and PhD: Du Haiming(2018-), Zhou Tao(2019-), Li Zexing(2019-2021, going to PhD at Cambridge)

Postdoc: Ren Tianyi (2018-2020, now tenure track at Beihang University), Huang Jiayi(2020-)

SERVICE Organize PDE/Analysis Seminar at BICMR, Peking University Sep 2015- present

Organize Calderon Zygmund Analysis Seminar at University of Chicago Oct 2013 - June 2015

Instructor for Summer REU at U.Chicago in 2014 with topic *Equilibria in Nonlinear Systems*;  
 Summer REU at U.Chicago in 2015 with topic *Introduction to Wave equation*

Article referee for Acta Sina, Discrete and Continuous Dynamical System - A(2), Communications in Mathematical Physics(4), Nonlinear Analysis Series B, Nonlinearity, Annals of PDE, Journal of Math.Study, Communications in Mathematical Research, Journal d'Analyse Mathematique, Journal of the American Mathematical Society, Mathematical Methods in the Applied Sciences.

REFERENCES Daniel Tataru (Ph.D. advisor), Berkeley, email: [tataru@math.berkeley.edu](mailto:tataru@math.berkeley.edu)

Carlos Kenig (Postdoc mentor), U. Chicago, email: [cek@math.uchicago.edu](mailto:cek@math.uchicago.edu)

Wilhelm Schlag(Postdoc mentor), U. Chicago, email: [schlag@math.uchicago.edu](mailto:schlag@math.uchicago.edu)

Herbert Koch, Universität Bonn, email: [koch@math.uni-bonn.de](mailto:koch@math.uni-bonn.de)