

Brian Jongwon Choi

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Nationality: USA
Languages: English, Korean

- INTERESTS** Partial Differential Equations, Uncertainty Quantification, Dynamical Systems, Probability, Harmonic Analysis
- EDUCATION** **Boston University**
PhD, Mathematics, May 2020
Thesis (under Mark A Kon):
Weighted Fourier Analysis and Dispersive Equations
- Boston College**
B.S., Magna Laude, Mathematics (Major), Physics (Minor), May 2014
Recipient of the Sally Award 2014
Thesis (under Dubi Kelmer):
An Algebraic Approach to Quantum Systems Using Finite Group Representation
- EMPLOYMENT** **Southern Methodist University**
RTG Postdoctoral Fellow, Jan., 2022 - present
Postdoctoral Researcher, Jan., 2021 - Dec. 2021
- Boston University**
Research Associate, June, 2020 - Dec., 2020
- Boston College**
Instructor, MATH1004 Finite Probability and Applications, Sept., 2020 - Dec., 2020
- Publications/
Preprints** (With Aceves) Bifurcation of Discrete Solitons of 2D Fractional Nonlinear Schrödinger Equation (Work in Progress)
- (with Walton) Infinite Speed of Propagation of Fractional Dispersive Equations (2023)
ArXiv: 2301.06288 (Submitted to Fractional Calculus and Applied Analysis),
- (with Aceves) Continuum Limit of 2D Fractional Nonlinear Schrödinger Equation (2022),
ArXiv:2207.10161 (Journal of Evolution Equations, accepted for publication)
- (with Aceves) Well-posedness of Mixed Nonlinear Schrödinger Equation *Partial Differential Equations in Applied Mathematics* (2022), **6**, <https://doi.org/10.1016/j.padiff.2022.100406>.
- (with Castrillon, Kon, Norton, Xu) Analytic Regularity of Nonlinear Poisson Boltzmann Equation (2021), arXiv:2106.05811. (Submitted to *Nonlinearity*)
- Multilinear Weighted Estimates and Quantum Zakharov System, *Mathematical Modelling and Analysis* (2022), **27**(2), 342-359, <https://doi.org/10.3846/mma.2022.15555>.

Remark on the Adiabatic Limit of Quantum Zakharov System, *Bulletin of the Malaysian Mathematical Sciences Society* (2022), <https://doi.org/10.1007/s40840-022-01272-6>.

Small Time Behaviour and Summability for Schrödinger Equation, *Graduate Journal of Mathematics* **6**(2) (2021), 9-21.

UNIVERSITY TEACHING	Academic Semester Teaching , Southern Methodist University	
	• MATH3302 Calculus 3	Spring 2023
	Academic Semester Teaching , Southern Methodist University	
	• MATH1337 Calculus 1	Fall 2022
	Summer Instructor , Southern Methodist University	
	• STAT 2331 Intro to Statistical Methods	Summer 2022
	Academic Semester Teaching , Southern Methodist University	
	• MATH1338 Calculus 2	Spring 2022
	Academic Semester Teaching , Southern Methodist University	
	• MATH1338 Calculus 2	Fall 2021
	Academic Semester Teaching , Southern Methodist University	
	• MATH3302 Calculus 3	Spring 2021
	Academic Semester Teaching , Boston College	
	• MATH1004 Finite Probability and Applications	Fall 2020
AWARDS	Academic Semester Teaching , Boston University	
	• MA113: Introduction to Statistics	Spring 2020
	Summer Instructor , Boston University	
	• Courses taught:	
	– MA113 Elementary Statistics I	Summer 2015
	– MA115 Statistics I	Summer 2015
	– MA123 Calculus I	Summer 2016
	– MA226 Differential Equations	Summer 2017
	Teaching Fellow , Boston University	Sept. 2014 - present
	• Courses taught:	
	– EK102 Linear Algebra for Engineers	
	– MA121 Calculus I for Social Sciences	
	– MA122 Calculus II for Social Sciences	
	– MA123 Calculus I	
	– MA226 Differential Equations	
	– MA411 Advanced Calculus	
	– MA511 Analysis I	
	– MA569 Operations Research	
TALKS	Korean Honor Scholarship , Consulate General of Korea in USA	September 2019
	DAAD RISE Scholarship , Paul-Erich-Institut, Germany	May - August 2014
	Sally Award , Department of Mathematics Boston College	May 2014
	Gilman International Scholarship , Institute of International Education	May 2012
TALKS	SIAM DS 2023, Oregon (Contributed Talk)	May 2023
	“Continuum Limit of 2D Fractional Nonlinear Schrödinger Equation”	
	12th Ohio River Analysis Meeting (Contributed Talk)	March 2023
TALKS	“On the Compactness of Solution Support of Fractional Dispersive Equations”	
	Research Talk, Navy Research Lab (Invited by Dr.Dey)	January 2023

“Bifurcation of Discrete Solitons of the Nonlinear Schrödinger Equation”	
SIAM 2022 TX-LA, University of Houston	November 2022
“Continuum Limit of 2D Fractional Nonlinear Schrödinger Equation”	
Computational Science Seminar, University of Texas at Dallas	October 2022
“Continuum Limit of 2D Fractional Nonlinear Schrödinger Equation”	
(Poster) SIAM Analysis of PDE 2022, Berlin, Germany (Virtual)	March 2022
“Dynamics of the Mixed-Fractional Nonlinear Schrödinger Equation”	
SIAM Analysis of PDE 2022, Berlin, Germany (Virtual)	March 2022
“Dynamics of the Mixed-Fractional Nonlinear Schrödinger Equation”	
Hamilton Methods and Asymptotic Dynamics, ICERM	Dec. 2021
“Quantum Zakharov System with the Periodic Boundary Condition”	
SIAM 2021 TX-LA, UTRGV (Minisymposium)	Nov. 2021
“On Mixed Nonlinear Schrödinger Equation”	
Ohio River Analysis Meeting, University of Kentucky (Cancelled due to COVID-19)	Mar. 2020
“Periodic Quantum Zakharov System”	
AMS Sectional Meeting, Tufts University (Cancelled due to COVID-19)	Mar. 2020
“Fourth-Order Perturbation of Cubic Nonlinear Schrödinger Equation”	
Joint Mathematics Meetings (Contributed Paper Session)	Jan. 2020
“Global Well-posedness and Modified Strichartz Estimates for the Fourth-Order Schrödinger Equation”	
SIAM Analysis of PDE (at La Quinta)	Dec. 2019
“Global Well-Posedness of the Adiabatic Limit of Quantum Zakharov System in 1D”	
BU/Brown/UMASS Dynamics & PDE Seminar	Nov. 2019
“Pointwise convergence of Full Schrödinger Operator”	
MSRI: Recent topics on well-posedness and stability of incompressible fluid and related topics	July 2019
“A.E. Pointwise Convergence of Schrödinger Operator to the Identity”	
Geometric and Harmonic Analysis, University of Connecticut	Mar. 2019
“Pointwise Convergence of Schrödinger Operator to the Identity”	
BU Student Dynamics Seminar, Boston University	Feb. 2019
“Wellposedness theory for the 1-dimensional Adiabatic Limit of Quantum Zakharov System”	
Boston Graduate Math Colloquium, Boston College	Feb. 2018
“Nonlinear Smoothing in Nonlinear Schrödinger Equation”	
BU Student Dynamics Seminar, Boston University	Nov. 2017
“Expository Talk: Fourier Restriction”	

	BU Student Dynamics Seminar, Boston University “Difficulties in Extending Onsager’s Conjecture to a Bounded Domain”	Feb. 2017
	BU Student Dynamics Seminar, Boston University “Time-Frequency Analysis and Carleson’s Theorem”	Dec. 2016
	BU Student Dynamics Seminar, Boston University “Representation Theory Methods in Quantum Systems”	Nov. 2016
CONFERENCE AND WORKSHOP ATTENDANCE	SIAM TX-LA-2022, Houston	Nov. 2022
	SIAM APDE-2022, Berlin Germany	Mar. 2022
	Hamiltonian Methods and Asymptotic Dynamics, ICERM	Dec. 2021
	SIAM TX-LA, UTRGV, TX	Nov. 2021
	MSRI: Recent topics on well-posedness and stability of incompressible fluid and related topics	July 2019
	SIAM Dynamical System, Snowbird Utah	May 2019
	Geometric and Harmonic Analysis, University of Connecticut	Mar. 2019
	CBMS Harmonic Analysis: Smooth and Nonsmooth, Iowa State University	June 2018
	Fractional PDEs, ICERM	June 2018
	Dynamical Systems Summer School, University of Houston	May 2018
	Transport and Localisation in Random Media, Columbia University	May 2018
	Frontier Probability Days 2018, Oregon State University	Mar. 2018
	Ohio River Analysis Meeting, University of Kentucky	Mar. 2017
	Mathematical Analysis of Incompressible Fluid, University of Sussex	Sept. 2017
	Midwest PDE, University Illinois Chicago	Sept. 2017
	Topological Expansions, and Random Matrices, Columbia University	Aug. 2017
	Metric Geometry and Gerrymandering, Tufts	Aug. 2017
	MSRI Nonlinear Dispersive PDE, Cortona	July 2017
	JDG: Geometry and Topology, Harvard University	Apr. 2017
	UNC PDE/Analysis Workshop: Random Schrodinger Operator, UNC	Oct. 2016
	MSRI Elliptic Equation on Rough Sets	July 2016

Service	Doctorate Student Advising , (Mentee: Steven Walton)	2022-Present
	Directed Reading Program , Mentor (Mentee: Will Graham)	2019-2020
	Student Dynamical Systems Seminar , Organizer	2017-2019
Skills	Machine Learning Specialization (Coursera)	
	(Stanford University, DeepLearning.AI, Credential Id: Q3JH7TCP34VD),	Aug. 2022
	Introductory C Programming Specialization (Coursera)	
	(Duke University, Credential Id: GA6S3L9UMQYH)	Sept. 2022
Miscellaneous	Violin II, Boston University All-campus orchestra	Sept. 2017 - 2018