Ke Chen

Contact Information

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Employment

University of Texas at Austin, USA

R.H. Bing Instructor, Department of Mathematics, August 2019 - Present

Education

University of Wisconsin-Madison, USA

Ph.D. in Mathematics, August 2019
Advisor: Qin Li
M.S. in Mathematics, May 2016

Shanghai Jiao Tong University (SJTU), China

B.A. in Mathematics and Applied Mathematics, May 2015

Honors

2019	*Campus Honored Instructor*, University of Wisconsin-Madison
2018	*John. A. Nohel Prize*, University of Wisconsin-Madison
2016	*Physical Sciences Award*, University of Wisconsin-Madison
2013	*Tsung-Dao Lee Undergraduate Research Grant*, SJTU
2012	*Meritorious Student Award*, SJTU

Publications

Tensor-structured sketching for constrained least squares
(with Ruhui Jin),
accepted by SIAM Journal on Matrix Analysis and Applications.

A low-rank Schwarz method for radiative transport equation with heterogeneous scattering coefficient
(with Qin Li, Jianfeng Lu and Stephen Wright),
Multiscale Modeling and Simulation 19.2 (2021): 775-801.

Structured random sketching for PDE inverse problems
(with Qin Li, Kit Newton and Stephen Wright),
SIAM Journal on Matrix Analysis and Applications 41.4 (2020): 1742-1770.

Random Sampling and Efficient Algorithms for Multiscale PDEs
(with Qin Li, Jianfeng Lu and Stephen Wright),
SIAM Journal on Scientific Computing 42.5 (2020): A2974-A3005.

Randomized Sampling for Basis Functions Construction in Generalized Finite Element Methods
(with Qin Li, Jianfeng Lu and Stephen Wright),
SIAM-Multiscale Modeling and Simulation 18.2 (2020): 1153-1177.

Schwarz iteration method for elliptic equation with rough media based on random sampling
(with Qin Li and Stephen Wright),
Proceedings of International Consortium of Chinese Mathematics 2019.

Stability of Stationary Inverse Transport Equation in Diffusion Scaling
(with Qin Li and Li Wang),
Inverse Problems 34.2 (2018): 025004.

Stability of Inverse Transport Equation in Diffusion Scaling and Fokker-Planck Limit
(with Qin Li and Li Wang),
SIAM Journal on Applied Mathematics 78.5 (2018): 2626-2647.

Online Learning in Optical Tomography: A Stochastic Approach
(with Qin Li and Jian-Guo Liu),
Inverse Problems 34.7 (2018): 075010.

Paper in Pipeline

A direct spectral solver for parabolic equations
(with Daniel Appelö, Tracy Babb and Per-Gunnar Martinsson)

Talks and Presentations

Workshop on Synergies between Data Science and PDE Analysis, University of Bonn, June 2022

Workshop on Outstanding Challenges in Computational Methods for Integral Equations, BIRS Oaxaca, May 2022

Joint Mathematics Meetings, Seattle, January 2022

International Conference on Spectral and High Order Methods, virtual meetings, July 2021

Workshop on Recent Development in Numerical Kinetic Theory, virtual meetings, June 2021

SIAM-CSE, virtual meetings, March, 2021

SIAM Conference on Imaging Science, virtual Meetings, July, 2020

AMS Sectional Meeting, University of Wisconsin-Madison, September, 2019

Midwest Machine Learning Symposium (Poster), University of Wisconsin-Madison, June, 2019

Applied Kinetic Theory Workshop for Junior Researchers, University of Wisconsin-Madison, April, 2019

SIAM-CSE, Spoken Convention Center, February 2019

Student Seminar at Statistics Department, University of Wisconsin-Madison, February, 2019

The 7th International Young Scholars Forum (Shenzhen), Sun Yat-Sen University, December, 2018

Conference on Fast Direct Solvers, Purdue University, November, 2018

SIAM Central States Conference, Oklahoma University, October, 2018

Kinetic Mini-workshop, University of Wisconsin-Madison, October, 2018

SIAM Chapter Seminar, University of Wisconsin-Madison, September, 2018

The 12th AIMS conference on Dynamical Systems, Differential Equations and Applications, National Taiwan University, July, 2018

Applied Mathematics Seminar, Duke University, June, 2018

Institute for Foundations of Data Science Student Workshop, University of Wisconsin-Madison, April, 2018

Conference Attended

Young Researchers Workshop: Kinetic descriptions in theory and applications, University of Maryland, October, 2018

2nd *TRIPODS PI Workshop*, University of California of Santa Cruz, October, 2018

Workshop on Nonconvex Formulations and Algorithms in Data Sciences, University of Wisconsin-Madison, July, 2018

Summer School on Fundamentals of Data Analysis, University of Wisconsin-Madison, July, 2018

Math + X Symposium on Seismology and Inverse Problems, Rice University, January, 2018

Hypo-coercivity and Sensitivity Analysis in Kinetic Equations and Uncertainty Quantification, University of Wisconsin-Madison, October, 2017

Summer School on Mathematical Fluids, University of South California, May, 2017

Young Researchers Workshop: Stochastic and Deterministic Methods in Kinetic Theory, Duke University, November, 2016

New Trends in Quantum and Classical Kinetic Equations and Related PDEs, University of Wisconsin-Madison, October, 2016

Graduate Students Workshop on Inverse Problems, Colorado State University, August, 2016

Conference on New Developments in Probability, Northwestern University, May, 2016

Mathematical and Computational Methods in Quantum Chemistry, University of Wisconsin-Madison, May, 2016

Boundary Value Problems and Multiscale Coupling Methods for Kinetic Equations, University of Wisconsin-Madison, April, 2016

Uncertainty Quantification for Hyperbolic Conservation Laws, University of Wisconsin-Madison, February, 2016

Asymptotic Preserving and Multiscale Methods for Kinetic and Hyperbolic Problems, University of Wisconsin-Madison, May, 2015

Uncertainty Quantification in Kinetic and Hyperbolic Problems, University of Wisconsin-Madison, March, 2015

Teaching Experience

Instructor, UT-Austin:

Fall	2021	Sequence, Series and Multivariate Calculus
Spring	2021	Sequence, Series and Multivariate Calculus
Spring	2020	Discrete Mathematics
Fall	2019	Differential and Integral Calculus I

Teaching Assistant, UW-Madison:

Fall	2018	Calculus-Functions of Several Variables
Fall	2017	Calculus-Functions of Several Variables
Spring	2017	Calculus and Analytic Geometry II
Fall	2016	Calculus and Analytic Geometry I

Travel Awards

2019	*Travel Support for applied inverse problems summer school*, France
2018	*Travel Award for* 2nd *TRIPODS PI workshop*, UCSC
2018	*Travel Support for IMA workshop*, University of Minnesota
2017	*Travel Award for Math + X Symposium*, Rice University
2017	*Travel Support for Summer School on Mathematical Fluids*, USC

Academic Service

Paper refereeing:
SIAM-MMS, SIAM-MAX, Journal of Computational Mathematics, Inverse Problems and Imaging, ICPMS2019

Activities and Service

2018	President of SIAM Student Chapter at UW-Madison
2018	Directed Research Study Mentor for Undergraduate Student
2018	Graduate Peer Mentor in Mathematics Department
2017	Graduate Student PDE seminars, UW-Madison

References

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