

## Sui Tang

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RESEARCH INTERESTS **Statistical learning theory:** nonparametric regression, high dimensional data analysis, statistical inference of SDE models  
**Applied and computational harmonic analysis:** Fourier analysis and functional analysis, mathematical and statistical signal processing

EMPLOYMENT **Department of Mathematics, Johns Hopkins University, Baltimore, USA**  
Assistant Research Professor, July 2016 –present  
Mentor: Professor Mauro Maggioni  
Co-Mentor: Professor Fei Lu

EDUCATION **Department of Mathematics, Vanderbilt University, Nashville, USA**

Ph.D., Mathematics, August 2016

- Thesis Topic: *Dynamical Sampling*
- Adviser: Professor Akram Aldroubi

M.S., Mathematics, December 2013

**School of Mathematics, Sun Yat-Sen University, Guangzhou, China**

B.S., Mathematics, September 2007–June 2010

HONORS AND AWARDS

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- [1] Best Overall Award in the poster competition of Second International Conference on Mathematics of Data Science November 2018
  - [2] AWM-NSF Travel Award for international conferences (\$2360) July 2017
  - [3] AMS-NSF Travel Award for Mathematical Congress of the Americas (\$1350) July 2017
  - [4] Vanderbilt Graduate School Travel Award (\$500) May 2016
  - [5] AWM travel award for Joint Mathematics Meeting (\$650) January 2016
  - [6] Vanderbilt Graduate Student Council Travel Award (\$500) May 2015
  - [7] Excellent Student Scholarships, Sun Yat-Sen University 2007–2009

GRANT

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- AMS-Simons Travel Grant (\$4000) July 2017 – July 2019

**Journal Papers**

- [1] F. Lu, M. Maggioni, and **S. Tang**. Learning interaction rules in deterministic interacting particle systems: a Monte Carlo Approach. Preprint.
- [2] F. Lu, M. Maggioni, **S. Tang** and M. Zhong. Discovering governing laws of interaction in heterogeneous agents dynamics from observations. Preprint.
- [3] Y. Eldar, W. Liao and **S. Tang**. Sensor Calibration for Off-the-Grid Spectral Estimation. ArXiv:1707.03378. To appear in *Applied and Computational Harmonic Analysis*.
- [4] A. Aldroubi, I. Krishtal, and **S. Tang**. Phaseless reconstruction from space-time samples. ArXiv:1706.05360. To appear in *Applied and Computational Harmonic Analysis*
- [5] C. Lai and **S. Tang**. Undersampled windowed exponentials, spectra of Toeplitz operators and its applications. ArXiv:1702.01887, 2017. To appear in *Acta Applicandae Mathematicae*.
- [6] **S. Tang**. Universal spatial-temporal sampling sets for discrete spatially invariant evolution systems. *IEEE Transactions on Information Theory*, 63(9), 2017.
- [7] **S. Tang**. System Identification in Dynamical Sampling. *Advance in Computational Mathematics*, 43(3), 2017.
- [8] A. Aldroubi, C. Cabrelli, U. Molter, and **S. Tang**. Dynamical Sampling. *Applied and Computational Harmonic Analysis*, 42(3), 2017.
- [9] R. Aceska, A. Petrosyan, and **S. Tang**. Multidimensional Signal Recovery in Discrete Evolution Systems via Spatiotemporal Trade Off. *Sampling Theory in Signal and Image Processing*, 14(2), 2015.

**Book Chapters**

- [10] A. Grim, B. Iskra, N. Ju, A. Kryshchenko, F.P. Medina, L. Ness, M. Ngamini, M. Owen, R. Paffenroth, and **S. Tang**. Analysis of simulated crowd flow exit data: visualization, panic detection, exit time convergence, attribution and estimation, 2018. To appear in *Research in Data Science*.
- [11] R. Aceska and **S. Tang**. Dynamical sampling in hybrid shift invariant spaces. In: *Operator Methods in Wavelets, Tilings, and Frame*(V. Furst, K. Kornelsen, E. Weber, editors), Contemporary Mathematics, American Mathematics Society, Providence, 626:149–166, 2014.

**Conference Papers**

- [12] A. Aldroubi, I. Krishtal, and **S. Tang**. Phase retrieval of evolving signals from space-time samples. *Proceedings of the 12<sup>th</sup> international conference on Sampling Theory and Applications*. 2017.
- [13] **S. Tang**. Filter Recovery in Infinite Spatially Invariant Evolutionary Systems Via Spatiotemporal Trade Off. In : *Proceeding of 11<sup>th</sup> international conference on Sampling Theory and Applications*, 444-448, 2015.
- [14] R. Aceska, A. Petrosyan, and **S. Tang**. Dynamical sampling of two-dimensional temporally-varying signals. In : *Proceeding of 11<sup>th</sup> international conference on Sampling Theory and Applications*, 440-443, 2015.

Note: In the mathematics community, all authors are considered of equal importance, and are listed alphabetically.

**Invited Conference Talks**

- [1] Minisymposium on “ Sparse Function Approximations: Theory and Applications”, Siam CSE 19, Spokane, Washington, March 2019
- [2] Special session on “Infectious Disease Data Modeling”, 4th International Conference on Big Data and Information Analytics, Houston, December 2018
- [3] AMS Fall Western Sectional Meeting, San Francisco State University, San Francisco, California, October 2018
- [4] Minisymposium on “Harmonic analysis in signal and imaging processing”, Siam Annual meeting, Portland, OR, July 2018
- [5] Seventh International Conference on Computational Harmonic Analysis (ICCHA7), Vanderbilt University, Nashville, TN, May 2018
- [6] Workshop on applied harmonic analysis and sampling theory, University of Central Florida, Orlando, FL, February 2018
- [7] Harmonic Analysis and Inverse Problems, Mathematical Congress of the Americas 2017, McGill University, Montreal, Canada, July 2017
- [8] Special session “Dynamical Sampling”, SampTA 2017 Conference, Tallinn University of Technology, Tallinn, Estonia, July 2017
- [9] Nonlinear signal recovery session in the Research Program of PCMI Summer school "Mathematics of Data", Midway, Utah, July 2016
- [10] Minisymposium on "Approximation theory in signal processing", 15th international conference on approximation theory, San Antonio, Texas, May 2016
- [11] SIAM Minisymposium on "Trends in the Mathematics of Signal Processing and Imaging", AMS Joint meeting, Seattle, Washington, January 2016
- [12] Special session “Dynamical, Nonlinear and Mobile Sampling”, SampTA 2015 Conference, American University, Washington, D.C., May 2015
- [13] AMS Fall Eastern Sectional Meeting, Dalhousie University, Halifax, Canada, October 2014

**Invited Seminar Talks**

- [14] Colloquium, Virginia Tech, November 2018
- [15] Norbert Wiener Center Seminar, University of Maryland, College Park, November 2018
- [16] ISyE Statistics Seminar, Georgia Institute of technology, November 2018
- [17] Analysis Seminar, George Mason University, November 2018
- [18] Norbert Wiener Center Seminar, University of Maryland, College Park, April 2017
- [19] Colloquium, Ball State University, Muncie, IN, April 2017
- [20] Applied math seminar, Duke University, December 2015

**Posters**

- [21] Second International Conference on Mathematics of Data Science, Norfolk, November 2018
- [22] IMA workshop "Transdisciplinary Foundations of Data Science", Minneapolis, September 2016
- [23] February Fourier Talk, University of Maryland, College Park, Maryland, February 2016
- [24] AWM workshop at AMS Joint meeting at Seattle, Washington, January 2016
- [25] February Fourier Talk, University of Maryland, College Park, Maryland, February 2015

**Invited Research Visits**

- [26] Georgia Institute of technology, Host: Professor Tuo Zhao, November 2018
- [27] Vanderbilt University, Host: Professor Akram Aldroubi, November 2016
- [28] Duke University, Host: Professor Mauro Maggioni, May 2016
- [29] Hong Kong University of Science and Technology, Host: Professor Yang Wang, July 2015
- [30] Michigan State University, Host: Professor Yang Wang, July 2014

**Invited Research Programs**

- [31] ICERM Women in Data Science and Mathematics Research Collaboration Workshop, Providence, RI, July 2017
- [32] PCMI Research program "Mathematics of Data", IAS/Park City Mathematics Institute, Midway, Utah, July 2016

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**TEACHING  
EXPERIENCE****Instructor:**

- Calculus II, Math 109, Johns Hopkins University, Spring 2019
- Linear Algebra, Math 201, Johns Hopkins University, Fall 2018
- Honors Linear Algebra, Math 212, Johns Hopkins University, Spring 2018
- Fourier Analysis, Math 443, Johns Hopkins University, Fall 2017

**Teaching Assistant:**

- Accelerated Single-Variable Calculus II, Vanderbilt University, Spring 2013
- Single-Variable Calculus II, Vanderbilt University, Fall 2013
- Single-Variable Calculus I, Vanderbilt University, Spring 2014
- Single-Variable Calculus I, Vanderbilt University, Fall 2014

**Reviewer:**

Applied Mathematical Modelling  
IEEE Transactions on Signal Processing  
Sampling theory in signal and image processing  
Proceeding of Sampling Theory and Applications (SampTA)  
Circuits, Systems, and Signal Processing  
Acta Applicandae Mathematicae  
Journal of Fourier Analysis and Applications  
Mathematical Reviews  
Frontiers in Applied Mathematics and Statistics

**Co-organizer:**

with Keaton Hamm, Minisymposium on "Approximation theory in signal processing",  
15th international conference on approximation theory, San Antonio, TX, May 22–  
25, 2016.  
with Weilin Li and Wenjing Liao, Minisymposium on "Harmonic analysis in signal  
and imaging processing", Siam Annual meeting, Portland, OR, Jul 09–13, 2017.

**Membership:**

American Mathematical Society  
Association for Women in Mathematics  
ICERM Women in Data Science Network