MARK MAGSINO

The Ohio State University ◇ Department of Mathematics
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EDUCATION

University of Maryland **May 2018**
Ph.D. in Mathematics
Advisor: John J. Benedetto

Carnegie Mellon University **May 2012**
B.S. in Mathematics & Japanese Studies

RESEARCH INTERESTS

My primary research area is frame theory, which is a subset of harmonic analysis. In particular, I study their applications to optimal line packings, compressive sensing, data science, and signal and image processing.

PROFESSIONAL EXPERIENCE

The Ohio State University **2018 - Present**
Research Visiting Assistant Professor

MITRE Corporation **Jun - Aug 2015**
Graduate Research Intern

PUBLICATIONS

Journal Articles

1. M. Magsino, D.G. Mixon, H. Parshall. "Kesten-McKay law for random subensembles of Paley equiangular tight frames". *To appear in Constructive Approximation.*
   Preprint available at https://arxiv.org/abs/1905.04360.

2. M. Magsino. "Constructing Tight Gabor Frames Using CAZAC Sequences" *Sampling Theory in Signal and Image Processing*, 16:73-99, 2017.

Book Chapters

3. J.J. Benedetto, K. Cordwell, and M. Magsino. "CAZAC Sequences and Haagerup's Characterization of Cyclic N-roots". *New Trends in Applied Harmonic Analysis: Sparse Representations, Compressed Sensing, and Multifractal Analysis II.* Birkhäuser, 2019.

Conference Proceedings

4. M. Magsino, D.G. Mixon, H. Parshall. "Linear Programming bounds for cliques in Paley graphs". *SPIE Optics + Photonics 2019.*

5. M. Magsino, D.G. Mixon. "Biangular Gabor frames and Zauner's conjecture". *SPIE Optics + Photonics 2019.*

6. M. Magsino, D. G. Mixon, H. Parshall. "A Delsarte-style proof of the Bukh–Cox bound". *Sampling Theory and Applications 2019.*

INVITED TALKS AND PRESENTATIONS

- Wavelets and Sparsity XVIII **Aug 2019**
  SPIE Optics + Photonics
- Algebra, Geometry, and Combinatorics of Subspace Packings **Jul 2019**
  SIAM Conference on Applied Algebraic Geometry
- Special Session on Frame Theory **Jul 2019**
  Sampling Theory in Signal and Image Processing (SampTA)
- Special Session on Wavelets, Frames, and Related Expansions **Apr 2018**
  AMS Spring Western Sectional Meeting
- AMS Special Session on Recent Advances in Packing **Mar 2018**
  AMS Spring Central Sectional Meeting
- Norbert Wiener Center Seminar **Oct 2017**
  University of Maryland

TEACHING

The Ohio State University - Visiting Assistant Professor **2018 - Present**

- Math 1172: Engineering Mathematics A — Fall 2018
- Math 2255: Differential Equations and Their Applications — Spring 2020
- Math 2415: Ordinary and Partial Differential Equations — Spring 2019
- Math 3345: Foundations of Higher Mathematics — Fall 2019

University of Maryland - Graduate Assistant **2012 - 2018**

- As Primary Instructor:
  - Math 111: Introduction to Probability — Fall 2016
  - Math 246: Introduction to and Classification of Differential Equations — Summer 2013
  - Stat 100: Elementary Probability and Statistics — Spring 2013, Fall 2013
- As Teaching Assistant:
  - Math 113: College Algebra and Trigonometry — Fall 2012
  - Math 115: Precalculus — Spring 2014, Fall 2014
  - Math 140: Calculus I — Spring 2017, Fall 2017
  - Math 246: Introduction to and Classification of Differential Equations — Spring 2015

Carnegie Mellon University - Undergraduate Assistant **2011 - 2012**

- 21-120: Differential and Integral Calculus — Fall 2011
- 21-122: Integration, Differential Equations, and Approximation — Spring 2012

MENTORSHIP

Undergraduate Research Mentorship

- Abhishek Vijaykumar. *Project on biangular Gabor frames and Zauner's conjecture.* **Fall 2019**

University of Maryland Directed Reading Program

- Lauren Fox. "Markov Chains and the Ergodic Theorem". **Fall 2013**
- Christopher Ostermann. "A Philosophical Enquiry of ZFC". **Spring 2016**

High School Outreach

- Nathan Richardson. "Fractal Analysis and its Applications". **Fall 2019 - Spring 2020**
  Senior capstone project.

SERVICE

- Norbert Wiener Center Seminar Organizer **Fall 2016 - Spring 2018**
- AMS Spring Central Sectional Meeting - Session Co-organizer **Apr 2020**
  Special Session on Optimization for Discrete Geometry

SKILLS

Languages	English (native speaker), Japanese (advanced proficiency)
Software	LaTeX, Python, Matlab, Mathematica, Git

Last updated: May 19, 2020