Mary Angelica Tursi

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Education	**University of Illinois, Urbana-Champaign,** Champaign, IL
	PhD in Mathematics- May 2021
	Advisor: Timur Oikhberg
	Title : *Topics on the Classification and Geometry of Banach Lattices*
	Franciscan University of Steubenville, Steubenville, OH
	B.S. in Mathematical Sciences and Theology- May 2014

Research Interests

Functional analysis, particularly Banach lattices and their geometry, intersections between functional analysis and descriptive set theory or continuous logic.

Publications and Preprints

2024	1.	*Lattice renormings of C_0(X) spaces,* (with T. Oikhberg), *submitted.*
2023	2.	*Approximate ultrahomogeneity in LpLq lattices, submitted.*
2022	3.	*Renorming AM-spaces,* (with T. Oikhberg), Proceedings of the American Mathematical Society.
	4.	*A separable universal homogeneous Banach lattice,* International Mathematics Research Notices.
2020	5.	*Order extreme points and solid convex hulls,* (with T. Oikhberg), *The Mathematical Legacy of Victor Lomonosov.*
2019	6.	*Separable Universal Banach Lattices*, (with D.H. Leung, L. Li, and T. Oikhberg), Israel Journal of Mathematics.

Talks, Seminars, and Conferences

May 2024	*Applications of Descriptive Set theory to Banach Lattices: a Survey of results, BSBL Workshop III, ICMAT (Series, Invited talks)*
May 2022	*Renorming AM spaces,* BSBL Workshop II, ICMAT (Invited Talk).
August 2021	*Homogeneity and Amalgamation in subclasses of Banach lattices,* IWOTA conference, Lancaster University (Invited Talk).
May 2021	*Displaying Isometry Groups in C_0(X) Spaces,* Positivity Webinar (online), (Invited talk).
December 2020	*Applications of Logic to Banach Lattices,* UK Operator Algebras Seminar (online).

September 2020	*A Separable Universal Homogeneous Banach Lattice,* Banach Space Theory Webinar (online), (Invited talk).
September 2020	*A survey of homogeneity in Banach space structures,* Illinois Analysis Seminar, University of Illinois.
April 2020	*Displaying Isometry Groups in Banach Lattices,* Graduate Student Logic Conference (GSLC), Notre Dame, (Invited talk, canceled due to COVID).
February 2020	*Quantifying Uncertainty in Object Detection,* Conference on Data Analysis (CoDA), Santa Fe, New Mexico (poster).
February 2020	*Lattice Analogues of Convex Hulls and Extreme Points,* AWM Mini-symposium, University of Illinois (lightning talk).
February 2020	*Displaying Polish Isometry Groups in Banach Lattices,* AWM Graduate Student Colloquium, University of Illinois (Invited talk).
September 2019	*Separable Universal Banach Lattices*, Wabash mini-conference, IUPUI.
April 2019	*Universality in Operator Spaces,* Illinois Analysis Seminar, University of Illinois.
May 2018	*Banach Spaces and Descriptive Set Theory,* Illinois Analysis Seminar, University of Illinois.

Applied research experience

June 2021- present	**Senior Signal Processing Engineer** Lockheed Martin, Missiles and Fire Control, Orlando, FL • Research and Development in the Radio Frequency team for radars and sensors • Modeling and simulation development for high fidelity comprehensive simulation program
May 2018- September 2020	**Uncertainty Waveforms Project** Illinois Applied Research Institute, in collaboration with Sandia National Laboratories. • Trained a convolutional neural network for detecting vehicles in satellite imagery and used various statistical techniques to analyze large datasets using Python and Caffe. • Developed a framework for quantifying uncertainty in object detection using Fourier analysis.
June 2016 - August 2017	**Tinitus Project** University of Illinois, Speech and Hearing Department. • Applied lead matrices to analysis of fMRI scans of test subjects with Normal Hearing, Hearing Loss, and Tinnitus. Lead Matrix analysis provided a richer approach to examining the scans than the usual correlation matrix analysis. •

Teaching Experience

Merit Teaching Assistant, University of Illinois
Designed rigorous curriculum and worksheets for supplementary credit hour for at risk and underrepresented students and taught in the following courses:

Fall 2020	• Merit Calculus III
Fall 2017-Spring 2018, Fall 2019- Spring 2020	• Merit Calculus I

Teaching Assistant, University of Illinois
Directed interactive discussion sessions for the following courses:

Fall 2014, Spring 2017	• Calculus II
Fall 2015, Fall 2016, Spring 2021	• Calculus III
Spring 2015	• Business Calculus
Spring 2016	• Applied Linear Algebra

Outreach and service

Fall 2020	**Illinois Geometry Lab** • Graduate student supervisor for undergraduate research project on theorem proving using "Pecan." • Advises students on the research writing process.
Fall 2020	**Colloquium committee** • Graduate student member.
Fall 2016-2018	**Interdisciplinary Graduate Society** • Founding member and treasurer. • Worked to organize talks and social gatherings for graduate students of different fields. • Gave various accessible talks on mathematical topics to non-mathematical audiences.

Other related skills

Languages
English (native), Spanish (native), Latin (translation), Classical Hebrew (translation).

Programming skills
Python (proficiency), MATLAB (proficiency), C++ (proficiency), Github/Gitlab, Machine learning.

Awards and Fellowships

Fall 2014,   **Teacher Ranked as Excellent**
Fall 2015,   University of Illinois.
Spring 2016

Summer 2014   **Summer Predoctoral Institute Fellow**
University of Illinois.

2014   **St. Anthony of Padua Alpha Phi Delta Award**
Franciscan University of Steubenville, equivalent to a "first in class" designation.

2014   **The Mathematics Award**
Departmental award, Franciscan University of Steubenville.