Minh Lam Nguyen, Ph.D.

Michigan State University, Department of Mathematics
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Research interest

Mathematical gauge theory, Low dimensional topology, Geometric analysis, Knot theory

Academic Positions

Assistant Professor of Mathematics, The University of Texas at Tyler — Starting Fall 2026

Postdoctoral Research Associate, Michigan State University — Since 2025
Mentored by Matthew Stoffregen

Postdoctoral Lecturer, Washington University in St. Louis — 2022-2025
Mentored by Aliakbar Daemi

Graduate Assistant, University of Arkansas — 2017-2022

Lecturer, The Pennsylvania State University — 2016-2017

Graduate Assistant, The Pennsylvania State University — 2014-2016

Industry experience

Research Consultant, University of Arkansas — 2021-2022
Supervised by Jeremy Van-Horn Morris

- Consulted and participated in, as part of an R&D effort, developing a mathematical 3D model for application to a manufacturing process for a Fortune 500 Consumer Products Company. Under NDA

Education

Ph.D. in Mathematics, University of Arkansas — 2017-2022
- Advisor: Jeremy Van-Horn Morris

M.A. in Mathematics, The Pennsylvania State University — 2014-2016
- Advisor: John Roe

B.S. in Mathematics, Liberty University — 2011-2014

Teaching

Michigan State University

- **Lecturer:** Introduction to Ordinary Differential Equations, Spring 2026
- **Recitation leader:** Calculus I, Math 132, Fall 2025

Washington University in St. Louis

- Topology II, Math 4181. Spring 2025
- Partial Differential Equations, Math 415. Fall 2024
- Calculus II, Math 132. Fall 2024, Spring 2024
- Calculus III, Math 233. Fall 2023
- Matrix Algebra, Math 309. Spring 2023, Fall 2022
- Calculus I, Math 131. Fall 2022

University of Arkansas

- **Instructor:** Elementary Differential Equations, Math 2584. Summer 2022
- **Drill instructor:**
  - Elementary Differential Equations, Math 2584. Fall 2019-Spring 2022
  - Calculus III, Math 2574. Spring 2019, Fall 2018
  - Calculus II, Math 2564. Spring 2018

The Pennsylvania State University

- **Instructor:** Plane Trigonometry, Math 25. Fall 2016-Spring 2017
- **Graduate student instructor:**
  - Ordinary and Partial Differential Equations, Math 251. Spring 2015, Summer 2015, Fall 2015.

SERVICES

Organizer

- Gauge theory and low dimensional topology reading seminar, Washington University in St. Louis, since Fall 2023
- Geometry & Topology seminar, Washington University in St. Louis, Fall 2023-Spring 2024
- Khovanov Homology Reading group, joint with Washington University in St. Louis and University of Arkansas, Spring 2023
- Summer reading seminar in Seiberg-Witten gauge theory, University of Arkansas, Summer 2022
- Graduate Student Colloquium, University of Arkansas, Fall 2018-Fall 2021

Outreach

- Teaching assistant for AMC 10/12 Study group of local high school students in preparing for national math competitions, University of Arkansas, Fall 2021- Spring 2022

AWARDS AND NOMINATIONS

William Kingdon Clifford Prize (Nomination), International scientific prize designed to encourage young researchers to compete for excellence in theoretical and applied Clifford algebras, their analysis and geometry, 2026

John C. Massie Memorial Scholarship, University of Arkansas, 2018-2019, 2020-2021

Lawrence Jesser Toll Jr. Endowed fund, University of Arkansas, 2019-2020

Mathematics Advanced Study Semester Award: Outstanding project in Analysis, The Pennsylvania State University, 2013

INVITED WORKSHOPS AND CONFERENCES

- The St. Louis Topology Conference. Washington University in St. Louis, Spring 2024
- Workshop in gauge theory and low-dimensional topology, University of Miami, Spring 2024
- AMS regional meeting, SUNY at Buffalo, Fall 2023
- Workshop at University of Miami: Gauge theory and low-dimensional topology, Spring 2023
- Instantons and Foams, MIT, May 2023
- Conference on analysis of Dirac type and Higher spin operators: Honoring John Ryan, Chapman University, Fall 2022
- New 4-dimensional gauge theory workshop, MSRI, Fall 2022
- Georgia Tech Topology Summer School, 2021
- MSRI Summer School in Gauge Theory in Geometry and Topology, 2021
- Symmetry and Geometry on the Southern Great Plains Conference, University of Oklahoma, Spring 2020
- AMS regional meeting, University of Florida, Fall 2019
- The Pacific Northwest Geometry Seminar, University of Washington, Spring 2019
- Yau's 70th birthday conference, Harvard University, Spring 2019

HIGHLIGHTED INVITED TALKS

University of South Florida Geometry & Topology seminar, Spring 2025,
Positive scalar curvature on ribbon rational homology cobordism
Gauge Theory Virtual Seminar, Fall 2024
Spectral invariants and positive scalar curvature on 4-dimensional cobordism
University of Arkansas Topology seminar, Fall 2024,
Filtered monopole Floer homology and ribbon rational homology cobordism
St. Louis University Geometry& Topology seminar, Fall 2024,
Spectral invariant from monopole Floer homology
Groups, Geometry, and Topology seminar, University of Illinois, Urbana-Champaign, Spring 2024,

Knot invariants from Equivariant Plane Floer homology

1188th Regional AMS meeting, SUNY at Buffalo, NY, Fall 2023,
Knot invariants from Plane Floer homology

SGGTC seminar, Columbia University, Fall 2022,
An abelian gauge-theoretic variant of the Seiberg-Witten equations for multiple-spinors

Conference on analysis of Dirac type and Higher spin operators: Honoring John Ryan, **Chapman University, Fall 2022**,
Rarita-Schwinger operators in gauge theory

Gauge Theory Virtual Seminar, Fall 2021
Finite dimensional approximation and Pin(2)-equivariant properties for the Rarita-Schwinger-Seiberg-Witten equations.

PUBLICATIONS

[1] A. R. Haj Saeedi Sadegh and M. L. Nguyen, The three-dimensional Seiberg–Witten equations for -spinors: A compactness theorem, *Math. Nachr.* (2025), 00–00. https://doi.org/10.1002/mana.70042

[2] Minh Lam Nguyen. *Pin(2)-equivariance property of the Rarita-Schwinger-Seiberg-Witten equations.* The Journal of Geometric Analysis **33** (2023), no. 10, 336

[3] James S. Cook, W. Spencer Leslie, Minh L. Nguyen, Bailu Zhang. *Laplace Equations for Real Semisimple Associative Algebras of Dimension 2, 3 or 4.* Topics from the 8th Annual UNCG Regional Mathematics and Statistics Conference. Springer (2013)

SUBMITTED PRE-PRINTS AND IN-PREPARATIONS

[4] William L. Blair, Minh Lam Nguyen. *Existence of solutions to the Seiberg-Witten vortex equations with exponential decay on the plane.* Preprint: arXiv:2406.20043v1

[5] AR Haj Saeedi Sadegh, Minh Lam Nguyen. *A Fueter operator for 3/2-spinors.* Preprint: arXiv:2405.1295v1

[6] Minh Lam Nguyen. *Spectral invariants and equivariant Monopole Floer homology*. Preprint: arXiv:2409.04954

[7] Aliakbar Daemi, Minh Lam Nguyen. *Equivariant Plane Floer homology and knot invariants*. In-preparation

[8] Aliakbar Daemi, Minh Lam Nguyen, and Christopher Scaduto. *Persistence instanton Floer homology*. In-preparation

[9] Aliakbar Daemi, Minh Lam Nguyen, Christopher Scaduto, and Matthew Stoffregen. *Calculations of spectral sequence in plane Floer homology*. In-preparation

LANGUAGES AND SKILLS

Vietnamese (native), English (advanced fluency)
LaTeX, Mathematica, Maple

REFERENCES

Aliakbar Daemi, Washington University in St. Louis
Blake Thorton, Washington University St. Louis
Christopher Scaduto, University of Miami
Matthew Stoffregen, Michigan State University
Jeremy Van-Horn Morris, University of Arkansas
Karl Schaefer, Washington University in St. Louis