

Spencer Leslie

CONTACT INFORMATION Boston College, Department of Mathematics spencer.leslie@bc.edu
spencerleslie.com

RESEARCH INTERESTS Automorphic forms and representation theory, Trace formulae, Fourier–Whittaker coefficients, Geometric representation theory

ACADEMIC POSITIONS

- **Assistant Professor**, Boston College
 - From Fall 2022–Present
- **William W. Elliott Assistant Research Professor**, Duke University,
 - From Fall 2018– Spring 2022.
 - supported as an **NSF Postdoctoral Fellow**, Fall 2019–Spring 2022

EDUCATION

Boston College, Chestnut Hill, MA

Ph.D., Mathematics, May 2018

- Advisor: Solomon Friedberg

M.S., Mathematics, August 2015

- Advisor: Solomon Friedberg

Liberty University, Lynchburg, VA

B.S., Mathematics , May 2013

- *Summa Cum Laude*

PREPRINTS

- **Unitary Friedberg–Jacquet periods and their twists: Relative trace formulas**, Spencer Leslie, Jingwei Xiao, and Wei Zhang, *submitted*, preprint available at arxiv:2503.09664 (2025).
- **Unitary Friedberg–Jacquet periods and their twists: Fundamental Lemmas**, Spencer Leslie, Jingwei Xiao, and Wei Zhang, *submitted*, preprint available at arxiv:2503.09500 (2025).
- **Symmetric varieties for endoscopic groups**, Spencer Leslie, *submitted*, preprint available at arxiv:2401.09156 (2024).
- **Endoscopy for unitary symmetric spaces**, Spencer Leslie, preprint available at arxiv:1910.09685 (2019).

PUBLICATIONS

- **The endoscopic fundamental lemma for unitary Friedberg–Jacquet periods**, Spencer Leslie, accepted at *Annals of Mathematics*, (2025).
- **Modular forms of half-integral weight on exceptional groups**, joint with Aaron Pollack, *Compositio Mathematica* (2024).
- **Harmonic analysis on certain spherical varieties**, Jayce Getz, Chun-Hsien Hsu, and Spencer Leslie, *J. Eur. Math. Soc.*, published online first (2024).

- **A fundamental lemma for the spherical Hecke algebra: The Jacquet-Rallis case**, Spencer Leslie, *Journal of Number theory* Volume 243, pages 475-494, (2023).
- **On the stabilization of relative trace formulae: descent and the fundamental lemma**, Spencer Leslie, *Advances in Mathematics*, page 108026 (2021).
- **An analogue of the Grothendieck–Springer resolution for symmetric spaces**, Spencer Leslie, *Algebra & Number Theory*, Vol. 15 (2021), No. 1, 69–107.
- **Resonant Mirković–Vilonen polytopes and formulas for highest weight characters**, Spencer Leslie, *Selecta Mathematica New Ser.* (2019) 25: 41.
- **Parity sheaves and Smith theory**, Spencer Leslie and Gus Lonergan, *J. für die Reine und Angew. Math.* (Crelle’s Journal) vol. 2021, no. 777, 2021, pp. 49-87.
- **A generalized theta lifting, CAP representations, and Arthur parameters**, Spencer Leslie, *Trans. Amer. Math. Soc.* 372 (2019), pp. 5069-5121.

PAPERS IN
PREPARATION

- **On triple product L -functions**, joint with Jayce Getz, Chun-Hsien Hsu, and Miao (Pam) Gu. (preprint available upon request)
- **A Poisson Summation formula for a family of Whittaker inductions**, joint with Jayce Getz, Chun-Hsien Hsu, and Miao (Pam) Gu.
- **Unitary Friedberg-Jacquet periods and arithmetic fundamental lemmas**, joint with Wei Zhang.
- **On the stabilization of relative trace formulae: cohomological statements and conjectures.**

GRANTS AND
AWARDS

- **NSF CAREER Grant** DMS-2440741, 2025-2030.
- **NSF Standard Grant** DMS-2200852, 2022-2025.
- **NSF Mathematical Sciences Postdoctoral Research Fellowship**, 2019-2022.
- **AMS–Simons Travel Grant**, July 2018-June 2021.
- **Pi Mu Epsilon mathematics honor society**, May 2014.
- **Wooldridge Merit Fellowship Award for Excellence in Mathematics**, May 2013.
- **Mathematics Student of the Year: Liberty University**, 2013.

TEACHING
EXPERIENCE

Boston College

MATH 8885 - Topics in Representation theory

Spring 2024

MATH 1103 - Calculus II (two sections)	Fall 2023
MATH 2216 - Introduction to Abstract Mathematics	Spring 2023
MATH 2216 - Introduction to Abstract Mathematics	Fall 2022
MATH 1101 - Calculus 1	Summer 2018
MATH 1004 - Finite Probability	Spring 2018
MATH 1180 - Principles of Statistics for the Health Sciences	Spring 2017
MATH 1180 - Principles of Statistics for the Health Sciences	Spring 2016
MATH 1100 - Calculus I	Fall 2015
MATH 1101 - Calculus II	Spring 2015

Duke University

MATH 218D- Linear algebra: with focus on applications	Fall 2021
MATH 401- Abstract Algebra	Fall 2020
MATH 216 - Linear algebra and Differential equations	Summer 2019
MATH 222 - Advanced Multivariable Calculus	Spring 2019
MATH 212 - Multivariable Calculus	Fall 2018

ORGANIZATION

- **7th Nisyros conference on Automorphic representations & related topics** July 2025
 - Title: On Trace Formulas
 - co-organized with Raphael Beuzart-Plessis, Wee Teck Gan, and Yiannis Sakellaridis.
- **BC Number theory/Representation theory seminar** Fall 2022-current
- **BC-MIT Number theory seminar** Fall 2023-current
- **AMS Special Session: Spring Sectional Meeting** April 2024
 - Session title: Automorphic Forms and Trace Formulae
 - co-organized with Yiannis Sakellaridis and Ngo Bao Chau.
- **AMS Special Session: Fall Central Sectional Meeting** October 2023
 - Session title: Problems related to automorphic forms, with an eye toward computation
 - co-organized with Aaron Pollack.
- **AMS Special Session at Joint Math Meetings** January 2023
 - Session title: Automorphic Forms and Representation Theory

- co-organized with Solomon Friedberg.
- **AMS Special Session** Spring 2021
 - Session title: Recent progress in automorphic representation theory
 - co-organized with Tian An Wong.

- **Duke Number theory seminar** Spring 2019-Fall 2021

MENTORING

- **Graduate students**
 - Siddharth Mahendraker (estimated graduation: Spring 2026)
 - Yuzheng Yu (estimated graduation: Spring 2027)
- **Postdoctoral researchers**
 - Thomas Hameister (2024-Present)

SERVICE AND
OUTREACH

- **First-Year Graduate student seminar organizer** 2024-ongoing
- **Distinguished Lecture Series committee Member** 2023-2024
- **Arizona Winter School: Automorphic forms beyond $GL(2)$** Spring 2022
Project Assistant: Modular forms on exceptional groups
- **Association of Women in Mathematics mentor:** Fall 2021-Spring 2022
- **Honors Senior thesis advisor:** Fall 2020-Spring 2021
Lucas Fagan (graduated with distinction)
Thesis title: *Schur Polynomials and Crystal Graphs*
- **Graduate Bootcamp Panel: panelist** August 2020
- **PRUV Mentor for undergraduate research project:** Summer 2020
 - Met weekly with advanced undergraduate,
 - taught mini-courses in algebraic number theory and representation theory,
 - mentored computational and theoretical research project
- **Duke University graduate student mentor:** Fall 2018- Present
Chun-Ru Lee
 - Meet weekly to discuss student's research
 - Provide advising support
- **Graduate Assistant for Mathematics Instruction** Spring 2018
 - Held bi-weekly tutoring sessions for statistics students
 - coordinated with teaching faculty and Nursing department administration.
- **Private weekly tutoring with advanced special-needs high school student**
Fall 2016-Spring 2018

- **BC Mathematics Graduate Association President** Fall 2016-Spring 2017
- **Graduate Student Teaching mentor** Fall 2016
- **Prospective Student Committee Member** Spring 2016

REFEREE

International Mathematics Research Notices, Documenta Mathematica, Compositio Mathematica, Canadian Journal of Mathematics, Annales scientifiques de l'École normale supérieure, Journal of Number Theory, Journal of Functional Analysis, Asterisque, Acta Mathematica, Memoirs of the AMS.

INVITED TALKS

- **Workshop on the Relative Langlands Program**, Institute for Mathematical Sciences, National University of Singapore (December 18, 2025–January 17, 2026).
 - Invited to give 3–5 lectures during the Winter school component of the program,
 - Invited to speak at conference during the final week of the program.
- **Eisenstein Series, Spaces of Automorphic Forms, and Applications**, Workshop at ESI, University of Vienna (September 1-5, 2025).
- **Automorphic Forms and Arithmetic Seminar**, Columbia University, (September 6, 2024)
- **Harish-Chandra Lecture series: Applications to representation theory**, two invited lectures in special year at Bhaskaracharya Pratishthana and IISER Pune, Pune, India (July 2024)
- **Summer School and Workshop on Relative Langlands Duality**, Summer school at University of Minnesota, Twin cities, MN (June 4-8, 2024)
- **Princeton-IAS number theory seminar**, Princeton, NJ (May 2, 2024)
- **Michigan Number theory seminar**, University of Michigan, Ann Arbor, MI (April 15, 2024)
- **Northwestern Number theory seminar**, Northwestern University, Chicago, IL (March 8, 2024)
- **University of Chicago Number theory seminar**, University of Chicago, Chicago, IL (March 7, 2024)
- **Arithmetic intersection theory on Shimura varieties**, AIM workshop at Caltech, Pasadena, CA (January 8-12, 2024)
- **Lie Groups seminar**, MIT, Cambridge, MA (December 6, 2023)
- **Number theory seminar**, MIT, Cambridge, MA (November 7, 2023)
- **New connections between physics and number theory**, invited conference speaker, Pollica Physics Centre, Italy (June 5-16, 2023)

- **The Hitchin system, Langlands duality and mirror symmetry**, invited workshop speaker, Instituto de Ciencias Matemáticas, Madrid (April 24-29, 2023)
- **POSTECH-PMI Number Theory Seminar**, virtual lecture, (October 28, 2022)
- **Harvard Number Theory Seminar**, Harvard University, Cambridge, MA (November 2, 2022)
- **Masterclass on Relative trace formulae**, served as program assistant, University of Copenhagen (August 22-26, 2022)
- **Basic functions, Orbital integrals, and Beyond endoscopy**, BIRS workshop, Banff (November 15-19, 2021)
- **The Mathematics Colloquium at Rutgers-Newark**, Rutgers University-Newark, Newark, New Jersey (November 10, 2021)
- **Relative aspects of the Langlands program, L-functions, and Beyond endoscopy**, CIRM (May 26, 2021)
- **Ngô’s geometric representation theory seminar**, University of Chicago (virtual) (April 8, 2021)
- **Automorphic project and research seminar**, research talk on relative endoscopy, (March 26, 2021)
- **Automorphic project and research seminar**, background talk on prestabilization (March 19, 2021)
- **Representations of Reductive groups seminar**, L’Institut de Mathématiques de Marseille, Marseille, France (February 25, 2021)
- **Algebraic Geometry–Representation Theory seminar**, Weizmann Institute of Science, Rehovot, Israel (October 14, 2020)
- **Hebrew University–Ben Gurion University Algebraic geometry/Number theory seminar**, Zoom lecture (April 27, 2020)
- **Group, Lie, and Number Theory seminar**, University of Michigan, Ann Arbor, Michigan (February 24, 2020).
- **Automorphic forms and Arithmetic seminar**, Columbia University, New York, New York (February 7, 2020).
- **BU–Keio University Workshop: Number theory**, Boston University, Boston, MA (June 24-28, 2019).
- **Recent Developments in Automorphic Forms**, University of Hawaii at Manoa in Honolulu, Hawaii (March 22-24, 2019).
- **Geometric methods in Representation Theory Seminar**, University of North Carolina, Chapel Hill, North Carolina (January 25, 2019).

- **Number Theory Seminar**, Duke University, Durham, North Carolina (November 14, 2018).
- **Automorphic forms on reductive groups and their covers: A conference in honour of Solomon Friedberg**, ETH Zürich, Switzerland (June 25-28, 2018).
- **Junior Number Theory Days**, Rutgers University-Newark, Newark, New Jersey (November 17-18, 2017).
- **Number Theory Seminar**, Duke University, Durham, North Carolina (October 11, 2017).
- **Representation Theory Seminar**, University of Massachusetts-Amherst, Amherst, Mass. (October 2, 2017).
- **Invited Graduate Student Speaker**, Palmetto Number Theory Series (PANTS), University of Tennessee (Knoxville), Knoxville, Tennessee (September 16-17, 2017).
- **Special Session on Real-Analytic Automorphic Forms**, University of North Texas, Denton, Texas (September 9-10, 2017).
- **Number Theory Seminar**, National University of Singapore, Singapore (August 10-17, 2017).