Matthew Gherman

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Citizenship: United States of America
Date of Birth: February 9, 1995

EDUCATION

UNIVERSITY OF CALIFORNIA, LOS ANGELES — Los Angeles, CA
Department of Mathematics
Cumulative GPA: 3.89/4.00

Doctor of Philosophy in Mathematics	Expected: June 2023
Candidate in Philosophy for Mathematics	June 2021
Master of Arts in Mathematics	June 2019

DUKE UNIVERSITY — Durham, NC
Trinity College of Arts and Sciences
Cumulative GPA: 3.95/4.00, GPA for math courses: 3.94/4.00
Bachelor of Science in Mathematics, *magna cum laude* — May 2017
Dean's List with Distinction 2013-2014, Dean's List 2015-2016

BUDAPEST SEMESTERS IN MATHEMATICS — Budapest, Hungary
Graduated with Honors from the Budapest Semesters in Mathematics in Fall 2015

TEACHING EXPERIENCE

UNIVERSITY OF CALIFORNIA, LOS ANGELES — Los Angeles, CA
Teaching Assistant Consultant, UCLA Department of Mathematics — September-December 2022
- Administered the TA training seminar for incoming graduate students
- Attended pedagogy seminars to reinforce learning objectives and active teaching techniques

UNIVERSITY OF CALIFORNIA, LOS ANGELES — Los Angeles, CA
Graduate Student Instructor, UCLA Department of Mathematics — March-September 2022
- In-person lead instructor for Math 110B - Group Theory to mathematics majors
- Online lead instructor for summer session Math 115A - Linear Algebra to prospective mathematics majors

UNIVERSITY OF CALIFORNIA, LOS ANGELES — Los Angeles, CA
Teaching Assistant, UCLA Department of Mathematics — September 2017-March 2022
- Led weekly discussions, held office hours, graded midterms and sometimes homework
- Courses include lower and upper division linear algebra, differential equations, calculus for life sciences, upper division and graduate algebra

UCLA OLGA RADKO ENDOWED MATH CIRCLE — Los Angeles, CA
Lead Instructor, UCLA Department of Mathematics — September 2018-June 2022
Instructor, UCLA Department of Mathematics — September 2017-June 2018
- Taught passionate, accelerated middle and high schoolers advanced mathematics
- Led and created content for weekly meetings

UNIVERSITY OF CALIFORNIA, LOS ANGELES — Los Angeles, CA
Directed Reading Program, Department of Mathematics — February-June 2022
- Mentored an undergraduate mathematics major for two quarters in algebraic topology

DUKE UNIVERSITY — Durham, NC
Tutor, Duke University Department of Mathematics — August 2014-May 2017
- Ran the undergraduate help room for multivariable calculus and linear algebra
- Hired to individually tutor 5 students to improve their math knowledge and confidence

RESEARCH EXPERIENCE

UNIVERSITY OF CALIFORNIA, LOS ANGELES — Los Angeles, CA
UCLA Department of Mathematics
- Classified the negligible cohomology of finite groups in degree 2 over any field
- Generalizing arguments of Emmanuel Peyre for the negligible cohomology of finite groups in degree 3

Advisor: Dr. Alexander Merkurjev, Professor of Mathematics at UCLA

DUKE UNIVERSITY Durham, NC

Program for Research for Undergraduates Fellow, Duke University Department of Mathematics June-August 2016
- Created a random walk annihilation algorithm on graphs for which stationary distributions maximize the sum of the Dirichlet eigenvalues of the graph
- Disproved a conjecture relating a similar mutual annihilation algorithm to the sum of the Dirichlet eigenvalues

Mentor: Dr. Jianfeng Lu, Associate Professor of Mathematics at Duke University

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY Gaithersburg, MD

Intern, Materials Department Summers of 2011, 2012, and 2013
- Created operational ceramic pots, optimizing flow rate and strength
- On-site produced ceramic pots are used to provide clean water in developing nations; however, they are often fragile

Supervisor: Dr. Timothy Foecke, Director at NIST Center for Automotive Lightweighting

WORK EXPERIENCE

THE EMMES CORPORATION Rockville, MD

Intern, National Institute of Neurological Disorders and Stroke May-August 2015
- Curated the Common Data Elements database by inputting data and addressing errors
- Provided quality control for the NINDS Common Data Element website by standardizing format and addressing errors

Supervisor: Joy Esterlitz, The Emmes Corporation

PUBLICATIONS AND PREPRINTS

Gherman, M. and Merkurjev, A. Negligible degree two cohomology of finite groups. *Journal of Algebra*, vol. 611 (2022) 82-93.

- For a finite group G, a G-module M and a field F, an element $u \in H^d(G, M)$ is negligible over F if for each field extension L/F and every group homomorphism $Gal(L^{sep}/L) \to G$, u belongs to the kernel of the induced homomorphism $H^d(G, M) \to H^d(L, M)$. We determine the group of negligible elements in $H^2(G, M)$ for every abelian group M with trivial G-action.

AWARDS

2022 LIGGETT FELLOW AWARD

UCLA Department of Mathematics, June 2022
- For excellence in teaching and its support

SKILLS AND QUALIFICATIONS

Computer
- Knowledge of Java, Python, C, Julia, and MIPS
- Experience with Mathematica
- Proficient in LaTeX