

Morgan Rodgers

Postdoctoral Researcher
RPTU Kaiserslautern–Landau
Department of Mathematics

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RESEARCH INTERESTS

Finite Geometries, Algebraic Combinatorics, Coding Theory, Combinatorial Designs, Algebraic Graph Theory, Association Schemes, Computational Algebra.

EDUCATION

- May 2012 Ph.D. Applied Mathematics, University of Colorado Denver.
Thesis Title: On some new examples of Cameron–Liebler line classes.
Advisor: Stanley E. Payne.
- July 2011 M.S. Applied Mathematics, University of Colorado Denver.
- May 2005 B.A. Mathematics, Humboldt State University.

WORK EXPERIENCE

- 2023–Present **Postdoctoral Researcher**, RPTU Kaiserslautern-Landau.
Project: “Symbolic Tools in Mathematics and their Application”.
Supervisors: Max Horn, Claus Fieker.
- 2020–2023 **Assistant Professor**, Istinye University.
- 2017–2020 **Assistant Professor**, California State University, Fresno.
- 2016–2017 **Visiting Assistant Professor**, Lake Superior State University.
- 2015–2016 **Postdoctoral Researcher**, University of Padova.
Project: “Finite Geometry with Applications in Algebra and Geometry”.
Supervisor: Michel Lavrauw.
- 2014–2015 **Instructor**, Los Medanos College.
- 2013–2014 **Postdoctoral Researcher**, Ghent University.
Funding: FWO
- 2012–2013 **Instructor**, University of Colorado Denver.
- 2007–2012 **Graduate Teaching Assistant**, University of Colorado Denver.

HONORS, AWARDS & FELLOWSHIPS

GK-12 Fellowship from the National Science Foundation (2010–2011). Spent the year working with 6th, 7th, and 8th grade students at Englewood Middle School as a resident mathematics expert.

Lynn Bateman Memorial Fellowship from the University of Colorado Denver, (*awarded three times, Fall 2007, Fall 2008, Spring 2009*). Provides financial support to outstanding graduate students.

COMPUTER SKILLS

Magma Advanced proficiency with the Magma Computer Algebra System.

Gurobi Proficiency using Gurobi to solve combinatorial optimization problems.

Python, Julia, C++ Knowledge of these languages to develop mathematical algorithms.

RESEARCH VISITS

- November 2022 Vrije Universiteit Brussel (BE). Collaborated with Jan De Beule.
 October 2019 Michigan Technical University (US). Collaborated with Stefaan De Winter.
 November 2018 University of Delaware (US). Collaborated with Xing Xiang.
 March 2018 University of Wisconsin-Madison (US). Collaborated with Paul Terwilliger.
 September 2014 Ghent University (BE). Collaborated with Jan de Beule.
 November 2013 University of Padova (IT). Collaborated with Michel Lavrauw.
 October 2011 Ghent University (BE). Collaborated with Jan de Beule.

RESEARCH PUBLICATIONS

- * Regular ovoids and Cameron–Liebler sets of generators polar spaces. (submitted) (with Maarten De Boeck and Jozefien D’haeseleer).
- * Regular sets of lines in rank 3 polar spaces. (submitted) (with Ferdinand Ihringer).
- 7. Cameron–Liebler line classes with parameter $x = (q + 1)^2/3$. *Advances In Mathematics* **385** (2021), (with Tao Feng, Koji Momihara, Qing Xiang, and Hanlin Zou).
- 6. Cameron–Liebler sets of generators in finite classical polar spaces. *Journal of Combinatorial Theory, Series A* **167** (2019), 340–388 (with Maarten De Boeck, Leo Storme, and Andrea Švob).
- 5. Classification of 8-dimensional rank two commutative semifields. *Advances in Geometry*, **19** (1) (2019), 57–64 (with Michel Lavrauw).
- 4. Cameron–Liebler k -classes in $PG(2k + 1, q)$. *Combinatorica*, **38** (3) (2018), 739–757 (with Leo Storme and Andries Vansweevelt).
- 3. A new family of tight sets in $Q^+(5, q)$. *Designs, Codes and Cryptography*, **78** (3) (2016), 655–678 (with Jan De Beule, Jeroen Demeyer, and Klaus Metsch).
- 2. Double k -sets in symplectic generalized quadrangles. *Designs, Codes and Cryptography*, **72** (2) (2014), 265–271 (with Stanley E. Payne).
- 1. Cameron–Liebler line classes. *Designs, Codes and Cryptography*, **68** (1) (2013), 33–37.

RESEARCH PRESENTATIONS

Invited Talks

- December 2023 On the mathematics of Frédéric Vanhove (BE).
 August 2022 SCALE Summer School on Finite Geometry (TR).
 October 2021 Sabancı Algebra Seminar, Sabancı University (TR).
 November 2019 Mathematics Department Colloquium, Michigan Technological University (US).
 November 2018 Discrete Mathematics Seminar, University of Delaware (US).
 February 2018 Combinatorics Seminar, University of Wisconsin-Madison (US).
 April 2017 Rocky Mountain Algebraic Combinatorics Seminar, Colorado State University (US).
 June 2015 Algebra Seminar, Sabancı University (TR).
 February 2015 Rocky Mountain Algebraic Combinatorics Seminar, Colorado State University (US).
 November 2013 Seminari di Geometria Combinatoria a Napoli, University of Naples ‘Federico II’ (IT).

- October 2013 Eindhoven Seminar Combinatorial Theory, Eindhoven University of Technology (NL).
 October 2011 Finite Geometry Seminar, Ghent University (BE).
 March 2011 Algebraic Combinatorics Seminar, Colorado State University (US).

Conference Presentations

- August 2022 SCALE Applications of Computer Algebra, Gebze Technical University (TR).
 June 2022 Combinatorial Constructions Workshop, University of Zagreb (HR).
 August 2019 Finite Geometry and Extremal Combinatorics, University of Delaware (US).
 February 2019 Finite Geometry Workshop 2019, Szeged (HU).
 September 2017 Finite Geometries, Fifth Irsee Conference, Irsee (DE).
 June 2016 Combinatorics 2016, Maratea (IT).
 April 2016 Network Coding and Designs, CAAS Dubrovnik (HR).
 September 2015 Giornate di Geometria 2015, Second University of Naples (IT).
 July 2015 Fq12, International Conference on Finite Fields and Their Applications, Skidmore College (US).
 July 2015 Fields-Carleton Finite Fields Workshop, Carleton University (CA).
 September 2014 Finite Geometries, Fourth Irsee Conference, Irsee (DE).
 May 2012 Rocky Mountain Discrete Math Days, Colorado State University (US).
 November 2011 Algebraic Combinatorics: In Memory of Bob Liebler, Colorado State University (US).
 June 2011 Finite Geometries, Third Irsee Conference, Irsee (DE).
 April 2011 MAA 2011 Rocky Mountain Section Meeting, University of Colorado Boulder (US).
 April 2008 MAA 2008 Rocky Mountain Section Meeting, Black Hills State University (US).

Local Presentations

- October 2019 Math Seminar Series, California State University, Fresno.
 February 2019 Undergraduate Mathematics Seminar, Fresno State.
 August 2018 Math Seminar Series, California State University, Fresno.
 October 2017 Undergraduate Mathematics Seminar, California State University, Fresno.
 February 2017 Math Colloquium Series, California State University, Fresno.
 December 2013 Seminars on Incidence Geometry, Ghent University.
 October 2009 Discrete Math Seminar, University of Colorado Denver.
 October 2008 Discrete Math Seminar, University of Colorado Denver.

GRADUATE STUDENTS

Graduate students supervised

AJ Vogt, M.S. California State University, Fresno, May 2019

PhD Committees

Nour Alnajjarine, Ph.D. Sabancı University, September 2022

Altan Berdan Kılıç, Ph.D. Sabancı University, May 2021

Gülizar Günay, Ph.D. Sabancı University, May 2021

TEACHING EXPERIENCE (graduate courses in bold)

Istinye University, Department of Mathematics

Algebra II (Spring 2022)
Advanced Calculus II (Spring 2022)
Advanced Calculus I (Fall 2021)
Computer Algebra Systems (Fall 2021)
Analytic Geometry & Linear Algebra I (Fall 2020, Fall 2021)
Analytic Geometry & Linear Algebra II (Spring 2021, Spring 2022)
Differential and Integral Calculus (Fall 2020)
Applied Linear Algebra (Spring 2021)
Linear Algebra (Spring 2021)

California State University, Fresno, Department of Mathematics

Modern Algebra II (Fall 2019)
Perspectives in Algebra (Fall 2017)
Coding Theory (Spring 2018, Spring 2020)
CSU Fresno REU Program (Summer 2018)
Graph Theory (Spring 2018)
Number Theory (Fall 2018, Spring 2019)
Linear Algebra (Fall 2018)
Calculus I (Fall 2017, Fall 2019, Spring 2020)

Lake Superior State University, School of Mathematics and Computer Sciences

Calculus I (Spring 2017)
College Algebra (Fall 2016)
Intermediate Algebra (Fall 2016, Spring 2017)
Beginning Algebra (Fall 2016)

Los Medanos College, Department of Mathematics

Introduction to Statistics (Spring 2015)
Precalculus (Fall 2014, Spring 2015)
Intermediate Algebra (Fall 2014)

University of Colorado Denver, Department of Mathematical and Statistical Sciences

Introduction to Modern Algebra (Summer 2012)

Linear Algebra and Differential Equations (Spring 2010, Spring 2012, Spring 2013)

Applied Linear Algebra (Summer 2008, Summer 2010)

Introduction to Abstract Mathematics (Fall 2012, Spring 2013)

Calculus II (Summer 2009)

Calculus I (Fall 2011)

Polynomial Calculus (Spring 2008)

College Algebra (Fall 2012)

SERVICE

California State University, Fresno Committees

College of Science and Math Budget and Space Committee (2018–2020)

Mathematics Department Assessment Committee (2019–2020)

Mathematics Department Catalog & Curriculum Committee (2019–2020)

Mathematics Department Articulation Committee (2018–2020)

Mathematics Department Software Committee (Fall 2018)

Mathematics Department Graduate Committee (2017–2020)

Reviewing

Finite Fields and Their applications

Designs Codes and Cryptography

Discrete Mathematics

European Journal of Combinatorics