

CURRICULUM VITAE

Mark Greer

CONTACT

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EDUCATION

- PhD, *Loops and their Permutation Groups*,
University of Denver, Mathematics, June 2013, advisor Michael Kinyon.
- M.S. University of Denver, Mathematics, June 2009.
- B.S. Northern Arizona University, Mathematics, May 2006.

PROFESSIONAL APPOINTMENTS

University of North Alabama - *Associate Professor*, (2019 - present).

Department Chair, (2018 - present).

Assistant Professor (tenured 2018), (2013 - 2018).

Courses taught: Finite Mathematics; Pre Algebra Calculus; Pre Algebra Trigonometry; Calculus for the Social Science I; Calculus I, II, III; Calculus I Honors; Introduction to Statistics; Linear Algebra; Introduction to Discrete Mathematics; Applied Statistics; Introduction to Abstract Algebra; Introduction to Actuarial Sciences; Foundations in Algebra for the Teacher; Group Theory.

Undergraduate Research Students:

John Carr (2014-15) - *Quasigroups, Groups, and the Sudoku Property*.

Kyle Kurzhal (2015-16) - *Quasigroups and Zero-Knowledge Protocols*.

John Carr (2015-16) - *Decompositions of Complete Graphs and P-Groupoids*.

Victoria Krohn (2017-2018) - *The value of entering the "Real" World*.

Kolby Thrasher (2019-2020) - *The eigenvalue problem for the Octonions*.

University of Denver - *Graduate Teaching Assistant*, (2007 - 2013).

Lecturer: Calculus I, II, III; Preliminary Examination Prep Class - Group Theory; Preliminary Examination Prep Class - Rings and Fields

Recitation instructor: Calculus I, II, III; Business Calculus

Teaching assistant: Discrete Math; History of Mathematics; Abstract Algebra.

University of Colorado at Denver - *CU Succeed Instructor*, (2010 - 2012).

Lecturer: College Algebra; College Trigonometry; Calculus I; College Statistics.

ITT Technical Institute - *Adjunct Faculty*, (2009 - 2011).

Lecturer: College Mathematics I, II; Introductory Calculus; Technical Calculus.

HONORS AND AWARDS

- Elizabeth Gaines Mann Professorship of Mathematics, University of North Alabama, \$2700 (2017-18).
- Early Career Outstanding Faculty Award - Research, Mathematics Department, University of North Alabama (2015).

- *Nominated for* Early Faculty Outstanding Faculty Award - Research, College of Arts and Science, University of North Alabama (2015)
- Elizabeth Gaines Mann Professorship of Mathematics, University of North Alabama \$2650 (2014-15).
- Graduate Mathematics Teaching Assistant of the Year Award, University of Denver (2012).

GRANTS

- University of North Alabama Arts & Sciences Research Grant for presenting at the Fourth Mile High Conference on Nonassociative Mathematics (internal), \$1,322 (2017).
- *Applied for* Project Squares: AIM Workshop Collaboration Grant “AIM at AIM” (external), \$30,000 (2016).
- University of North Alabama Arts & Sciences Research Grant for presenting at LOOPS’ 15 (internal), \$2,107 (2015).
- University of North Alabama, Quality Enhancement Program Undergraduate Research Grant (with J. Carr) (internal), \$2,000 (2015).
- *Applied for* Project Squares: AIM Workshop Collaboration Grant “AIM at AIM” (external), \$30,000 (2015).
- University of North Alabama Arts & Sciences Research Grant for hosting ADAM 2014 (internal), \$1,000 (2014).
- University of Denver Graduate Travel Grant for the Joint Mathematics Meetings (internal), \$977 (2013).
- University of Denver Travel Grant for Loops’ 11 (internal), \$1,866 (2011).
- University of Denver Dissertation Fellowship (internal), \$2,500 (2010).

PEER REVIEWED JOURNAL ARTICLES

appeared

- [1] Automorphic loops and metabelian groups (with L. Raney), *Comment. Math. Univ. Carolin.* (to appear).
- [2] Decompositions of Complete Graphs and P-groupoids (with J. Carr), *Quasigroups and Related Systems*, **27** (2019), 201-210.
- [3] Simple right conjugacy closed loops, *Nonassociative Mathematics and its Applications, Contemporary Mathematics*, **721** (2019), 151-163.
- [4] Semiautomorphic inverse property loops, *Comm. in Algebra* **5** (2017), 2222-2237.
- [5] Moufang extensions and semidirect products of loops with groups (with L. Raney), *Comment. Math. Univ. Carolin.* **55** (2014), 411-420.
- [6] A class of loops categorically isomorphic to Bruck loops of odd order, *Comm. in Algebra* **42** (2014), 3682-3697.
- [7] Pseudoautomorphisms of Bruck loops and their generalizations (with M.K. Kinyon), *Comment. Math. Univ. Carolin.* **53** (2012), 383-389.

in preparation or under review

- [8] A generalization of Moufang, Steiner, and automorphic loops (with M.K. Kinyon), in preparation.
- [9] Every metabelian group of odd order gives rise to an automorphic loop (with M.K. Kinyon), in preparation.

in progress

- [10] The eigenvalue problem for the Octonions (with L. Raney and K. Thrasher), in progress.
- [11] Latin Singquandles (with J. Prince-Lubawy and L. Raney), in progress.
- [12] Pentagonal Quasigroups (with S. Vidak), in progress.
- [13] Right conjugacy closed loops and their associated quandles (with M. Bonato), in progress.
- [14] Moufang mappings and their connections (with L. Raney), in progress.
- [15] Ternary operations in loops and their connections in knot theory (with A. Johnson), in progress.

- [16] Geometric quasigroup and loop theory (with A. Johnson), in progress.

SCHOLARLY PRESENTATIONS

invited

- [1] “On the enumeration and classification of commutative automorphic loops,” Special Session on Quasigroups and loops - in honor of J.D.H. Smith’s 70th birthday, AMS Fall Central Sectional Meeting, University of Wisconsin-Madison, WI, USA (September 2019).
- [2] “Complete graph decompositions and P-groupoids,” Loops’ 19, Budapest University of Technology and Economics, Budapest, Hungary (July 2019).
- [3] “Bruck loops and commutative automorphic loops of odd order,” Algebra Seminar, University of Denver, Denver, CO, USA (May 2018).
- [4] “Connecting Quandles, Quasigroups and Loops,” Southern Regional Algebra Conference, Auburn University Montgomery, Montgomery, AL, USA (April 2018).
- [5] “Loop constructions from finite groups,” Special Session on Structure and Representation Theory of Finite Groups, AMS Central Sectional Meeting, Ohio State University, Columbus, Ohio, USA (March 2018).
- [6] “Constructing right conjugacy closed loops,” Fourth Mile High Conference on Nonassociative Mathematics, University of Denver, Denver, CO, USA (July 2017).
- [7] “T-Loops,” Special Session on Nonassociative Algebra, AMS Western Sectional Meeting, University of Denver, Denver, CO, USA (October 2016).
- [8] “Automated Deduction in Undergraduate Research Projects (pedagogical talk),” Automated Deduction and its Application to Mathematics, University of New Mexico, Albuquerque, New Mexico, USA (August 2016).
- [9] “A generalization of Moufang and automorphic loops,” Loops’ 15 Ohrid, Macedonia (July 2015).
- [10] “Nonassociative Constructions from Baer,” Zassenhaus Group Theory conference, Binghamton, NY, USA (May 2015).
- [11] “Moufang semidirect products of loops with groups and inverse property extensions,” Mathematics Colloquium, University of Denver, Denver, CO, USA (May 2015).
- [12] “Simple Right Conjugacy Closed loops,” 3rd Mile High Conference on Nonassociative Mathematics, Denver, CO, USA (August 2013).
- [13] “A class of loops categorically isomorphic to Bruck loops of odd order,” Special Session on Quasigroups, loops, and nonassociative division algebras, AMS Central Section Meeting, Iowa State University, Ames, IA, USA (April 2013).
- [14] “Constructions of Diassociative Loops,” Special Session on Quasigroups, loops, and nonassociative division algebras, AMS Central Section Meeting, South Bend, IN, USA (November 2010).

contributed

- [15] “Quasigroups and their associated Quandles,” Contributed Session, AMS Southeastern Conference, Vanderbilt University, Nashville, TN, USA (April 2018).
- [16] “Going to Loops from Groups through Baer,” Southern Regional Algebra Conference, University of South Alabama, Mobile, AL, USA (March 2017).
- [17] “Quasigroups and Undergraduate Research Projects (pedagogical talk),” Contributed Session on Undergraduate Research and Teaching of Upper Level Mathematics, MAA Southeastern Conference, University of Alabama – Birmingham, Birmingham, Alabama, USA (March 2016).
- [18] “A general construction for simple right conjugacy closed loops,” Contributed Session, AMS Southeastern Conference, University of Georgia, Athens, Georgia, USA (March 2016).
- [19] “Nilpotent groups and Commutative Automorphic loops,” Automated Deduction and its Applications to Mathematics, Florence, University of North Alabama, AL, USA (August 2014).
- [20] “Simple Right Conjugacy Closed loops and Hall planes,” Ohio State-Denison Mathematics Conference, Columbus, OH, USA (May 2014).
- [21] “Simple Right Conjugacy Closed loops,” Mathematics Colloquium, University of North Alabama, Florence, AL, USA (August 2014).

- [22] “A Message Authentication Code based on quasigroups and loops,” Mathematics Colloquium, University of North Alabama, Florence, AL, USA (September 2013).
- [23] “An introduction to loop theory,” Mathematics Colloquium, University of North Alabama, Florence, AL, USA (September 2013).
- [24] “Loops categorically isomorphic to Bruck loops,” Joint Mathematics Meetings, San Diego, CA, USA (January 2013).
- [25] “Loops categorically isomorphic to Bruck loops,” Rocky Mountain Discrete Mathematics Days, Denver, CO, USA (October 2012).
- [26] “From Groups to Loops,” Student Seminar, University of Denver, Denver, CO, USA (September 2012).
- [27] “Sylow Theory for Commutative Automorphic Loops,” Graduate Colloquium, University of Denver, Denver, CO, USA (April 2012).
- [28] “Constructing Commutative Loops,” Student Seminar, University of Denver, Denver, CO, USA (September 2011).
- [29] “A Construction for Commutative Automorphic Loops,” Loops’ 11, Tr’est, Czech Republic (July 2011).
- [30] “Some Varieties of Diassociative Loops – Structures and Constructions,” Graduate Colloquium, University of Denver, Denver, CO, USA (April 2011).
- [31] “A close look at Groups with Triality II,” Student Seminar, University of Denver, Denver, CO, USA (October 2010).
- [32] “A close look at Groups with Triality I,” Student Seminar, University of Denver, Denver, CO, USA (October 2010).
- [33] “Constructions on Diassociative Loops,” Student Seminar, University of Denver, Denver, CO, USA (May 2010).
- [34] “Turbo Codes,” Graduate Colloquium, University of Denver, Denver, CO, USA (March 2008).
- [35] “Numerical Semigroups,” Arizona Mathematical Undergraduate Conference, Northern Arizona University, Flagstaff, AZ, USA (November 2005).

SERVICE TO THE DEPARTMENT, COLLEGE, AND UNIVERSITY

University

- Sculpture Garden Committee, (2019-present).
- Graduate Advisory Council, (2018-present).
- UNA Research Day Poster Session - Lead Judge (2018).
- Faculty Senate, (2014-2018).
- Faculty Senate Executive Board Nominating Committee, (2016 & 2017)

College of Arts and Science

- College of Arts & Sciences Research & Development Grant Committee, (2013-2018).
- Panel Speaker, Best Practices in Experiential Learning Conference, (2017).
- Faculty Volunteer, Judge, and Scorekeeper - Three Minute Thesis (3MT) Competition, (2014-present).

Mathematics Department

- Department Chair, (2018-present).
- Graduate Coordinator, (2018).
- Master Program Committee, (2016-2018).
- Tenure and Promotion Guidelines Committee, (2016-2018).
- Summer School Policy Committee, (2016-2018).
- Honor Project Consultant
 - Nicholas Holley (2016) *Adidas, Nike, and Under Armour stock prices with ANOVA.*
 - Victoria Krohn (2018) *The value of entering the “Real” World.*
 - Kolby Thrasher (2019) *The eigenvalue problem for the Octonions.*
- QEP Project Committee (2014-2018)

Project Creation for Introduction to Discrete Mathematics.

Rubric Creation for Introduction to Discrete Mathematics.

- Faculty Volunteer - Alabama State-wide Mathematics Competitions (2013-present).
- General Education Course Offering Committee (2014-2016).
- Faculty Procedure Committee (2014-2016).

Student Awards

- John Carr
 - Best Student Presentation - University of North Alabama Research Day (2016).
 - College of Arts and Science Undergraduate Research Award (2015).
 - Best Student Presentation - Kennesaw Mountain Regional Undergraduate Mathematics Conference (2014).
- Victoria Krohn
 - College of Arts and Science 3MT Competition - Second Place (2018).

Other

- Statistical Advisor
 - AJP Northwest (2017-2018).
 - Victoria Greer (2016) Nursing Masters Thesis.
 - Dr. Marilyn Lee (2015) NU 609 Statistical Concepts for Nurses.

Professional Organizations

- American Mathematical Society (2007-present).
- Mathematical Association of America (2007-present).
- Sigma Phi Epsilon (2001-present).

SERVICE TO THE PROFESSION

Refereeing and Reviewing

- *American Mathematical Society* (USA).
- *MathSciNet Mathematical Reviews* (USA).
- *Contemporary Mathematics* (USA).
- *Commentationes Mathematicae Universitatis Carolinae* (Czech Republic).
- *Quasigroups and Related Systems* (USA).
- *Analele Stiintifice ale Universitatii "Al. I. Cuza" din Iasi* (Romania).
- *Pearson Education Inc.* (USA).

Organizer of Conferences, Seminars, Etc.

- Co-Organizer (with L. Raney): Special Session on Supervising Undergraduate Research Projects, MAA Southeastern Section Meeting, Mercer University, Macon, GA (2017).
- Organizer: Automated Deduction and its Application to Mathematics (ADAM 14) Conference, Florence, AL (2014).
- Organizer: Mathematics Colloquium, University of North Alabama, Florence, AL (2013-2017).
- Faculty Volunteer: Alabama Statewide Mathematics Contest, University of North Alabama, Florence, AL (2013-present).
- Local organizer: 3rd Mile High Conference on Nonassociative Mathematics, Denver, CO (2013).
- Interim Organizer: Algebra & Logic Seminar, University of Denver, Denver, CO (2012-2013).
- Organizer: Graduate Student Seminar, University of Denver, Denver, CO (2012-2013).