Gregory J. Loges
Curriculum Vitae

(508) 654-4374
gloges@wisc.edu

Research Interests

Research interests include theoretical high energy physics and mathematical physics. Previous work has involved SO(10) grand unified theories stemming from M-theory.

Education

Ph.D., Physics — Aug. 2017 – Present
University of Wisconsin – Madison — *Madison, WI*

- Prospective admission to candidacy: Fall 2019

B.S. Physics, B.S. Mathematics — Aug. 2013 – May 2017
University of Rochester — *Rochester, NY*

- Graduated *Cum Laude*: Physics GPA 3.96/4.00; Mathematics GPA 3.95/4.00; Cumulative GPA 3.82/4.00
- Recipient of Dean's Scholarship; Recipient of Research and Innovation Grant; Dean's List seven of eight semesters
- Completed three-course clusters in both Economics and Ancient Greek
- Notable coursework:
  - Mathematics independent study: *Representation Theory: Classification of Semi-simple Lie Algebras and Construction of* $\mathfrak{g}_2$
  - Physics graduate courses: Gravitation (P413); Quantum Mechanics I (P407); Quantum Mechanics II (P408)

Research Experience

Research Assistant — June 2016 – May 2017
Department of Physics & Astronomy — *Rochester, NY*

- Worked with Dr. Tamar Friedmann to investigate supersymmetric SO(10) grand unified theories that arise from M-theory.
- Used topological and geometric properties of the compactification space to extract properties of the lower-dimensional particle spectrum.
- Worked with particles and their representations to derive renormalization group equations for several breaking schemes.
- Analyzed energy scales and considered the phenomenological implications of the breaking schemes.

Teaching Experience

Graduate Teaching Assistant — Aug. 2017 – Present
Department of Physics — *Madison, WI*

- General Physics (P104) – Fall '17
- Lead weekly discussions and laboratory sessions.
- Hold weekly office-hours to aid students with problem sets.

Study Group Leader — Sept. 2016 – May 2017
Center for Excellence in Teaching & Learning — *Rochester, NY*

- Lead weekly sessions with a small group of introductory physics students.
- Helped students with study strategies and reinforced critical-thinking skills.
- Facilitated group discussion and group problem solving.

Teaching Intern — Sept. 2014 – May 2017
Department of Physics & Astronomy — *Rochester, NY*

- E&M I (P217) – Fall '16; Honors Modern Physics (P143) – Spring '15, Spring '16 and Spring '17'; Honors Mechanics (P141) – Fall '15; General Physics I (P113) – Fall '14
- Lead weekly recitations to supplement lecture material with discussions and collaborative work.
- Held weekly office-hours to aid students with problem sets.

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- Graded and provided feedback for students' problem sets and exams.

Volunteer Tutor Jan. 2014 – May 2017
Society of Physics Students *Rochester, NY*

- Volunteered weekly as a tutor in the Physics, Optics & Astronomy Library.
- Helped physics students in introductory courses learn material through discussion and worked examples.

Professional Experience

Peer Adviser Jan. 2016 – May 2017
College Center for Advising Services *Rochester, NY*

- As liaison to Department of Physics & Astronomy, served as a resource for students for all things academic.
- Met with students to discuss course planning, research opportunities and other college opportunities.
- Underwent training through College Center for Advising Services to better advise students for their undergraduate careers, gaining knowledge of many university services to recommend to students as necessary.

Database Developer June 2015 – Aug. 2015
Department of Physics & Astronomy *Rochester, NY*

- Built department database for undergraduate records using FileMaker Pro.
- Learned about database design and writing scripts through the FileMaker Pro software.
- Gained knowledge of HTML and JavaScript while creating a user-friendly interface.

Awards and Honors

Undergraduate Teaching Award May 21, 2017
Presented by the Deptartment of Physics & Astronomy, University of Rochester

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Technical Skills

- *Working Knowledge*: LaTeX, Mathematica, Java, FileMaker Pro
- *Basic Knowledge*: Python, HTML, JavaScript