

Ekaterina (Katya) Ulyanov

ekaterina.ulyanov@mail.mcgill.ca

EDUCATION

McGill University , Montréal, QC, Canada	August 2024-May 2030 (Expected)
Doctor of Philosophy in Physics	
Advisor: Peter Grutter	
Williams College , MA, USA	September 2020-June 2024
Bachelor of the Arts in Physics with Honors	GPA: 3.6/4.0
Thesis Advisor: Catherine Kealhofer	
Sigma Xi membership	

POSTERS/PRESENTATIONS

Undergraduate Thesis Defense	2024
<i>Williams College</i>	
Optimization of a Large Mode Area Yb: fiber Chirped-Pulse Amplifier for Ultrafast Electron Diffraction Experiments	2024
<i>APS Conference for Undergraduate Women in Physics</i>	
Optimization of Ultrafast Laser Pulses Using Nonlinear Optics	2023
<i>Williams College Summer Science Research Program</i>	
Progress Towards Spin-Polarized Ultrafast Electron Pulses from Ferromagnetic Nanoemitter Tips	2022
<i>Williams College Summer Science Research Program</i>	
Effects of Testosterone on Vascular Function	2019
<i>Discovery to Cure High School Internship</i>	

RESEARCH EXPERIENCE

Research Assistant & Thesis Student	January 2022-May 2024
<i>Kealhofer Lab, Department of Physics</i>	<i>Williams College</i>
<ul style="list-style-type: none">Improved laser Yb: fiber oscillator and Chirped-Pulse Amplifier to optimize temporally-short (fs) and energetic (μJ) optical pulses for pump-probe Ultrafast Electron Diffraction experiments.Prepared nm-radius electron emitter tips; Designed and implemented MATLAB data collection/analysis program; Worked on ultra-high vacuum system.	
Research Assistant	January 2021-March 2021
<i>Giovanetti Lab, Department of Physics</i>	<i>Williams College</i>
<ul style="list-style-type: none">Provided quality assurance work testing equipment effectiveness while building a Time Projection Chamber Argon photon detector prototype in collaboration with the DarkSide-20k project.Tested Silicon Photomultiplier (SiPM) components and wrote Python code to image photon signals.	
Research Intern	June 2019-August 2019
<i>John B. Pierce Laboratory, Discovery to Cure High School Internship</i>	<i>Yale University</i>
<ul style="list-style-type: none">Worked under the supervision of Dr. Nina Stachenfeld to collect and analyze flow-mediated vasodilation data to understand the effects of heightened testosterone levels on the vascular health of natal women.	

TEACHING EXPERIENCE

Tutorial Teaching Assistant

Department of Physics

September 2024-Present

McGill University

- Reinforced students' understanding of lecture material through twice-weekly tutorial sessions and exam review sessions for Mechanics and Waves (PHYS 131).

Private Tutor

Self-employed

May 2024-August 2024

Stanford, CT

- Prepared twice-weekly lectures to prepare high school students for AP Physics 1. Assigned and provided feedback on homework problems that familiarized students with AP problem format.

Teaching Assistant

Department of Physics

September 2022-May 2024

Williams College

- Reinforced students' understanding of class concepts through weekly homework-help and exam review sessions for Introduction to Mechanics (131), Electromagnetism & the Physics of Matter (132), Mechanics & Waves (141), Thermodynamics & Statistical Mechanics (302).
- Provided timely, personalized feedback on student work through detailed Problem Set grading.
- Fostered teamwork and communication between junior Teaching Assistants.

Tutor & Office Assistant

Russian School of Mathematics

June 2018-March 2020

Stanford, CT

- Reviewed missed lessons and provided homework help for Precalculus students.

COMMUNITY ENGAGEMENT & LEADERSHIP

The Association of Graduate Students Employed at McGill

September 2024-Present

McGill University

McGill Graduate Association of Physics Students

September 2024-Present

McGill University

Physics Department Intramural Ultimate Frisbee Team

September 2024-Present

McGill University

President

Society of Physics Students

September 2021-May 2024

Williams College

- Fostered a welcoming social environment within the Physics and Astronomy departments by developing weekly community-building events, including lunch with faculty members, study session snacks, engineering challenges, and homemade liquid nitrogen ice cream.

President

Women & Gender Minorities in Physics/Astronomy

September 2021-May 2024

Williams College

- Organized events to create a welcoming environment for gender minority students within the Physics and Astronomy departments, including trips to the Conference for Undergraduate Women in Physics (Jan 2023, 2024).
- Began yearly summer research book club tradition to foster discussion regarding ethical questions in science research and to celebrate underrepresented identities within the physics/astro fields.

President

NovelTeas Book Club

September 2020-Present

Williams College

- Led meetings and discussions. Managed biweekly supply runs, communication with club members, and collaboration with local libraries.
- Organized and currently runs a book club for recently-graduated Williams alumni, monthly meetings.

Staff writer

The Williams Record

February 2020-May 2022

Williams College

- Wrote 6 articles for Opinions and Arts sections, focusing on Russian current events, Williamstown community visual art, and film review.

SKILLS

Programming Languages

MATLAB; Mathematica; Python

Software

SOLIDWORKS

Technical Skills

Scanning Electron Microscope (SEM) operation; Machining

Languages

Native English; Native Russian (awarded Connecticut Seal of Biliteracy, 2020)

Limited working Mandarin, Spanish

Beginner French