

Aleksandra Karapetrova

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EDUCATION

Pomona College, Claremont, CA

September 2011 – May 2015

Bachelor of Arts in Molecular Biology, May 2015

Cumulative GPA: 9.545/12

High School Diploma from University of Chicago Laboratory Schools, attended 2007-2011

American Alpine Research Grant Recipient 2021

Eda May Haskell Library Prize from Pomona College 2015

Awarded the Endowed Raney Scholarship, 2012-2015

Presented at the American Physical Society March Meeting 2014

Instructable Green Design Contest Winner for Mobile Solar Energy Generator 2014

Good.is Nest Challenge Winner for Electric Bike Generator 2014

Presented at the American Chemical Society Western Regional Meeting 2013

RESEARCH EXPERIENCE

Environmental Toxicology PhD Program, University of California, Riverside

September 2020 – Present

Advisor: Distinguished Professor Jay Gan

Studying and imaging terrestrial microplastics

Mentor for the Environmental Sciences first-year graduate student mentorship program at UCR

Current GPA of 3.94/4.0

Sierra Nevada Aquatic Research Laboratory, Mammoth Lakes, CA

*October 2016 – August 2019

Advisor: Dr. David Herbst, Professor Rebecca Lyons

Identify and analyze shifts in benthic invertebrate communities of saline Mono Lake and Walker Lake

Characterize microbial communities at Superfund site Leviathan Mine with biochemical assays

Built database for a seven-year study analyzing impacts of climate change on alpine stream ecosystems

Teaching Assistant for Environmental Chemistry course

Molecular Biology Department, Pomona College, Claremont, CA (Senior Thesis)

August 2014 – May 2015

Advisor: Professor Matthew H. Sazinsky

Site-directed mutagenesis of Toluene ortho-xylene Monooxygenase

Primer design, DNA sequencing, and ToMO protein purification

Center for Nanoscale Materials, Argonne National Laboratory, Lemont, IL

Summer 2014

Advisor: Dr. Elena Rozhkova

Assembled titanium-dioxide/platinum nanoscale particles and bacteriorhodopsin as a photocatalyst

Measured hydrogen production by catalysts with GC-MS

Harvested bacteriorhodopsin from *Halobacterium salinarum*

Funded by the DOE, by the Summer Undergraduate Laboratory Internship Program

Materials Science Division and Center for Nanoscale Materials, Argonne National Laboratory, Lemont, IL

Summer 2013

Advisor: Dr. Elena Rozhkova and Dr. Valentin Novosad

Sputtered and isolated permalloy microdisks from a photoresist film

Measured hydroxyl radical formation with fluorimeter

Produced atomic force and electron microscope imaging of microdisks

Participated in studies of metals leaching from permalloy particles using synchrotron X-ray fluorescence (APS)

Funded by the Department of Energy with Argonne National Laboratory

Molecular Genetics and Cell Biology Department, University of Chicago, Chicago, IL

Summer 2008-2011

Advisor: Professor Laurens Mets

Modeled and constructed an electrochemical fuel cell

Cultured anaerobic methanogens

Conducted voltammetry and mass spectrometry measuring of fuel cell output

WORK EXPERIENCE

Mt. Hood Summer Ski Camps, Gov't Camp, OR and Outdoor Education Center, Pomona College, Claremont, CA

Spring 2012 – Present

Head Camp Counselor/ Outdoor Education Center Staff and Guide

Guided astronomy classes on camping and star-gazing trips

Organized events on backcountry safety and managed a communally shared house in the Eastern Sierra

Guide rock climbing, rafting, and cliff jumping activities at an overnight camp and cared for children ages 8-18

**Trapdoor Social Band LLC, Los Angeles and the Sustainability Integration Office,
Pomona College, Claremont, CA**

Spring 2014-October 2016

Engineer for Mobile Solar Generators

Designed and built a multi-component mobile power generation system
Trained and helped users of the system, creating Standard Operating Procedure and troubleshooting
Promoted sustainability and feminine empowerment in technology through Pomona College and a Band

Adaptation and Education Center for Refugee Children, Moscow, Russia

Fall 2012-Present

and Upward Bound, Harvey Mudd College, Claremont CA and PrepNow Tutoring, Remote

Tutor and Mentor for Highschool students

Created curricula for teaching science, history, and literature for Russian native speakers learning ESL
Provided mentorship for first generation students
Attended workshops on inclusivity and teaching techniques
Tutored high school students in math, science, history, and reading

LEADERSHIP EXPERIENCE

Molecular Biology Liaison, Pomona College, Claremont, CA and Alumni Liaison,

University of Chicago Laboratory School, Chicago, IL and Tour Liaison for

Film Director Evgeny Mitta, Moscow, Russia

Spring 2014-March 2018

Represent students and voice their opinions to the faculty and administration
Plan events to promote student-faculty relationships, molecular biology students, and build a supportive alumni network
Create a nationwide tour among U.S. prestigious academic institutions for Evgeny Mitta and his film *Act and Punishment*

Contributor, Editor, and Organizer for Free Radicals Blog, Los Angeles, CA

Winter 2016 –Present

Develop and lead workshops on ethical research at Caltech, Pomona College, and UC Santa Cruz
Promote awareness on ethical scientific practices and tools for transformative research
Create inclusive spaces for underrepresented scientists
Collaborate with community organizations to share scientific knowledge for the public

Orientation Adventure Leader Pomona College, Claremont, CA

Fall 2012-May 2015

Organized activities to foster community support for incoming students
Promoted cultural awareness on campus and attended inclusion and diversity workshops

Additional Volunteer Work

Fall 2012-Present

Nanodays: demonstrate unique properties of nanomaterials to public with Pomona Physics Dept.
Pomona College campus tour guide for underrepresented high school student programs
Captain of a Pomona College intramural soccer team and avid pick-up soccer player
Assist college-bound students with completion and submission of DACA forms through Pomona College
Pomona Physics Dept. Coordinator for the opening of the Millikan Science Building
Student Representative on Social Responsibility Committee at Pomona College
Member of Eastern Sierra Women in STEM; organize and participate in high school and Earth day science demonstrations

LABORATORY SKILLS

Site-Directed Mutagenesis	Mass Spectrometry	Voltammetry	Sputtering Deposition
Protein Purification	Confocal Imaging	Enzyme Assays	Atomic Force Microscopy
Recombinant DNA Technology	Arduino Micro-Controlling	Western Blot	Solar Panel Circuitry
Fluorescence Spectrophotometry	Raman Spectroscopy	Java/Arduino	Electron Microscopy
X-ray Fluorescence Microscopy	Image J/Fiji	Biolog Ecoplates	

RELEVANT COURSEWORK

General Chemistry	Biochemistry	Evolutionary & Ecological Biology	Molecular Biology
Organic Chemistry	Advanced Biochemistry	Advanced Cell Biology	Linear Algebra
Physical Chemistry	Electronics/Electromagnetism	Cell Biology	Genetics
Environmental Chemistry			

*Between March 2016-August of 2018, a leg injury occurred where four major surgeries hindered ability to work at times