

Rebecca Osar

(779) 435-9070
rosar1@asu.edu

Education

Arizona State University, Tempe AZ

Bachelor's of Science in Physics, Minor in Chinese
GPA (unweighted): 4.0 major; 3.98 cumulative

Expected May 2023

Research Experience

Arizona State University, Meson Physics Group, Tempe, AZ

with the Thomas Jefferson National Laboratory CLAS12 collaboration

Undergraduate researcher

Oct. 2019-Nov. 2022

Advisor: Dr. Michael Dugger (ASU)

- Searching for theoretically predicted resonances in channels with particles containing strange quarks
- Soon to present thesis on efficiency-corrected yields of $\gamma_p p \rightarrow N^* \rightarrow K^+ \Lambda_{1520} \rightarrow K^+ K^- p$
- Analyzing and plotting data using C++ and ROOT
- Running Monte Carlo simulation using shellsript

CERN, Scattering and Neutrino Detector (SND@LHC), Geneva, Switzerland

Summer Student

Jun. 2022-Aug. 2022

Advisor: Federico Cindolo (CERN)

- Group investigated neutrino interactions at high energies from collisions out of ATLAS
- Developed real-time histogram monitoring of the new detector to put on a sever for shifters to use
- Helped assemble tungsten-emulsion walls for routine upgrade

Illinois Math and Science Academy, Aurora, IL

and Fermi National Accelerator Laboratory, Batavia, IL

with CERN's CMS collaboration

Student researcher

Aug. 2017-Jun. 2019

Advisors: Dr. Peter Dong (IMSA) and Dr. Lenny Spiegel (Fermilab)

- Group searched for evidence of quark contact interactions and large extra dimensions
- Helped write Python and Bash scripts to automate submission of Monte Carlo jobs
- Investigated Collins Soper angle $\cos\theta$ to improve particle charge identification in dilepton production

Presentations

American Physical Society April Meeting, New York, NY, April 2022. Osar, R. "Cross Section Analysis for $ep \rightarrow e\Lambda_{1520}K^+ \rightarrow eK^+K^-p$ " (poster).

American Physical Society Four Corners Conference, Boulder, CO (virtual), October 2021. Osar, R. "Efficiency-Corrected Yields of $K\Lambda_{1520}$ Channel" (oral presentation).

Department of Physics Undergraduate Research Symposium, Arizona State University, Tempe, AZ (virtual), April 2021. Osar, R. "Search for High-Mass Resonances Decaying Into $K\Lambda^*$ " (poster).

College of Integrated Sciences and Arts Research Symposium, Arizona State University, Mesa, AZ (virtual), December 2020. Osar, R. "Event Generator for $\gamma p \rightarrow K^+ K^- p$ Events" (poster).

Teaching Experience

Arizona State University

Grader for Math Methods in Physics (PHY 201, 302) Aug. 2021-Present

- Provide feedback on homework, projects, and assessments
- Hold weekly office hours to support students
- Communicate with professor how to best help students

Arizona State University

Sundial Summer Program Facilitator Summer 2021

- Developed and taught basic lessons in physics and astronomy for incoming freshmen
- Tested and led labs
- Made and gave advice talks

Arizona State University

America Reads Tutor Jan.-Nov. 2020

- Tutored students K-5 in math, reading and writing
- Wrote and implemented fun, hands-on lesson plans
- Worked with other tutors to ensure the best outcome for students

Organizations

Phi Beta Kappa	2022-Present
Sundial, <i>Mentor</i>	2021-Present
APS, <i>Member</i>	2021-Present
SPS, <i>Member</i>	2019-Present

Coding Skills

C++	Intermediate
ROOT	Intermediate
Python	Intermediate
C#	Intermediate
MATLAB	Novice
BASH Shellscript	Novice

Languages

Mandarin Chinese	Advanced
French	Novice