Rebecca Osar

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Education

Arizona State University, Tempe AZ
B.S. in Physics, Chinese Minor *Expected May 2023*
GPA (unweighted): 4.0 major; 3.98 cumulative

Research Experience

Arizona State University, Meson Physics Group, Tempe, AZ
with the Thomas Jefferson National Laboratory CLAS12 collaboration
Undergraduate researcher **Oct. 2019-Oct. 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 $\gamma_v p \rightarrow N^* \rightarrow K^+ \Lambda_{1520} \rightarrow K^+ K^- p$
- Analyzing and plotting data using C++ and ROOT
- Running Monte Carlo simulation using shellscript

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).

Honors and Awards

Bidstrup Foundation Research Fellowship	**2020-Present**
Joohn C Wheatly Scholarship (Dept. of Physics)	**2022**
Vesto M Slipher Scholarship (Dept. of Physics)	**2021**
Foreign Language and Area Studies (FLAS) Fellowship	**2020-2021**
Department of Physics Scholarship	**2020**
National Merit Scholar	**2019**

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, *Mentor*	**2021-Present**
APS, *Member*	**2021-Present**
SPS, *Member*	**2019-Present**

Coding Skills

C++	Intermediate
ROOT	Intermediate
Python	Intermediate

C#	Intermediate
MATLAB	Novice
BASH Shellscript	Novice

Languages

Mandarin Chinese	Advanced
French	Novice