

Research beyond borders: Poster Symposium and Research Fellowship for Underrepresented and Minority Groups in STEM

Team: Faculty lead [Michael J Schefferstein](#) (Lab Coordinator III), [COSMOS](#) ([PHYS/APS](#) & [Math](#)) Aaron Barrios (VP), Bethany Wilcox (Faculty Liaison), [CU-Prime](#) Tyler McMaken (Talks Organizer), Maeve Anderson (Class Organizer), [SPS](#) Luke Coffman, Owen Grimes (Co-presidents)

Abstract

For students from underrepresented and minority groups (SUMGs), several barriers exist to successfully securing research. Power dynamics exacerbated by cultural differences can make approaching unknown professors or graduate students intimidating, while at-first unpaid or for-credit research positions can pose financial friction. This project aims to rectify these issues through an Interdepartmental Poster Symposium, where anyone researching in the Physics/APS/Math departments can present. The opportunity to connect with full-time researchers will help bridge the gap between student and professor. Our keynote speakers—Professors Eleanor Hodby and Eric Cornell—will speak to DEI in STEM and carving out one’s research journey, respectively. Additionally, we will create a fellowship to fund SUMGs in their pursuit of STEM research—bolstering access and lowering barriers. This Poster Symposium will bring a greater sense of intra/interdepartmental community, help retain SUMG students, and show all A&S students they are supported in their professional endeavors.

Project Summary

Motivation

Undergraduate research is a transformative experience. Often, it can help students discover their passion and be better prepared for graduate school or other professional endeavors. Unfortunately, SUMGs are often unable to participate in these experiences. Some are transfer students, unfamiliar with the inner workings of their department and unaware of numerous helpful programs and research they would be interested in. Others are minority students, who often have greater financial pressures and thus cannot take advantage of research opportunities without pay. Our goal is to counteract these systematic issues through an Interdepartmental **Poster Symposium event** and a subsequent **Research Fellowship Fund** to provide an opportunity for all STEM students—especially SUMGs—to learn about their peers’ research, provide a means to express their passion for the field, and increase their sense of belonging within their department(s).

Existing programs

Though the University of Colorado Boulder offers excellent research in the Physics, APS, and Math departments, often SUMGs can feel left out of this research loop. Smaller-scale departmental events like the Physics Honors Symposium or the APS Undergrad Research Symposium are usually intended only for high-performing, final-year students and do not provide funding to support students in their research process. Other programs like UROP have provided funding, but are challenging to acquire, and put the burden on students to find their research faculty mentors. By combining aspects of these types of programs on a scale not seen before in the history of these departments, we are in a unique position to help SUMGs and others find and solidify research positions. We will also provide opportunities for career development and information about all the other programs mentioned above as student resources.

Who are we?

We represent a collective of student organizations among CU's Physics, APS, and Math Departments with the goal of building community and fostering support for SUMGs. **COSMOS** hosts regular social events and professional development opportunities, **CU-Prime** hosts a mentorship program, a talk series, and a student-designed class, and **SPS** hosts weekly events for students—such as talks and information sessions—on how to succeed in Physics. These groups often collaborate to put together large-scale events. Most recently, we hosted the 2nd annual Pumpkin Drop, where we had activities and prizes for students, with the main event of dropping a Pumpkin from the top of the JILA tower. Moreover, each group has extensive expertise in SUMG outreach and advancement events. Therefore, we believe we have the experience and ability to expand our social impact beyond our departments and execute a successful Interdepartmental Poster Symposium.

Poster Symposium

The Poster Symposium will take place on a Saturday during the semester, from 10 am-4 pm in the UMC Ballroom. From 10-11 am is check-in and breakfast. Presenters will grab their name tags and start to set up their posters. At 11am, we will begin the inaugural ceremony and present the day's schedule. The Symposium will start at 11:30 am, with groups of students walking around the posters and asking questions. This will help ease students into asking questions and engaging with researchers—especially if they have not done so. Moreover, the presenters can also view current research in the departments, and faculty/graduates can fill an opening for an undergraduate research assistant. We will also encourage undergraduate presenters' faculty advisors to be present—both to support their mentees and to examine other showcased research. The Symposium will halt at 12:30 pm, and lunch will be served until 1:30 pm. Our Keynote Speakers will give their talks from 1:30-2:00 pm, and the second poster session will commence at 2:15 pm—in case some could not attend the earlier one, or wanted to

speak with a particular professor. From 2:30 pm- 3:30 pm, we will stop the second session and provide a rundown of all the other fantastic initiatives present at CU (and beyond). These will include but not be limited to: UROP, McNair, MASP, Uplift—and of course, our respective student groups. Finally, our closing speech will be 3:30-4:00 pm, sending off students who are better prepared for their research journeys.

SUMG Research Fellowship

After this Symposium, we plan to maintain the momentum with our *SUMG Research Fellowship*. This grant will allow all students in the Physics, Astronomy, and Math departments to be compensated for their research. With the help of connections made during the Symposium—or via other means—students can apply for funding with a STEM research topic of their choice. Anyone may apply, but preference will be given to SUMGs. We will ask for a 1-page personal statement, with a choice between prompts: *How has your identity impacted your path in physics, or What field of physics are you most passionate about, and how have you cultivated that passion?* The review council will comprise two faculty members and a graduate student, evaluating for applicants who will take full advantage of this grant. We plan to admit up to 11 students in our fellowship, who must find a mentor by the fund’s start date and fill out a midterm/final progress report—signed by their mentor. Should the Symposium be a recurring event, they would also agree to present their research at the next one.

Project Budget:

| Item | What it provides for | Cost |
|--------------------------|--|---|
| Catering (CU) | Breakfast and Lunch for 260 total people | 260*(\$12.50/person + \$20/person) = \$8,450 |
| Posters | Printing costs and poster stands for a maximum of 60 presenters. | 60* (\$75 + \$17) = \$5,520 |
| SUMG Research Fellowship | Compensation for research at standard student work hours and minimum wage, for a total of 11 students. | 11 students * 10h /wk* 15wk/semester*\$15/hr = \$11*2250 = \$24,750 |

Total: \$8,450 + \$5,520 + \$24,750 = \$38,720

We are requesting \$38,720 dollars in funds from the Dean's Innovation Fund.