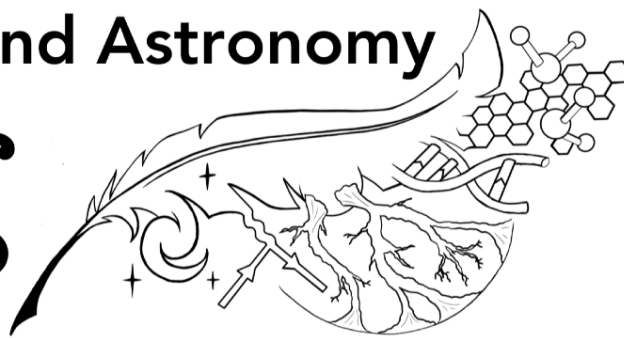


**UCI** Physics and Astronomy

**Blog**



## 2021 Fall Quarter Newsletter

*Volume 4, Issue 1*

### Student Spotlight



Leslie Heid is a 2nd year Ph.D. student who completed the Mathematical, Computational, and Systems Biology (MCSB) gateway program at UCI during her first year. As part of the program, Leslie rotated into different research labs within the departments of Mathematics, Physics, Chemistry, or Computer Science, participating in one group per quarter. After her first year, Leslie had the choice of staying in MCSB or transferring to one of ten other UCI departments. She first learned of the program when searching for graduate

schools within the fields of applied mathematics, biology, and physics. Because she has a family, including her 4-year-old daughter, she wasn't able to move far away. The MCSB gateway program was close to home and gave her the ability to try different lab groups that are of interest to her. Through this experience, Leslie said she had the opportunity to learn biology, explore the sciences from a mathematical perspective, and ultimately decide what she wanted to do in her graduate career. In just over the course of one year, she was able to work on three different research projects and won UCI's Grad Slam 2021 competition, all while spending her free time with her daughter and doing homework at night. She ultimately joined ChAMP (Chemical and Applied Materials Physics) to work in Dr. Chris Barty's group studying laser physics.

Read the full spotlight [here](#).

We are taking nominations for the Student Spotlight! If you want to nominate a graduate student you know, you can do so using the google form located here: <https://forms.gle/c5nUYf3CZed5sb6n7>

## Question of the Quarter

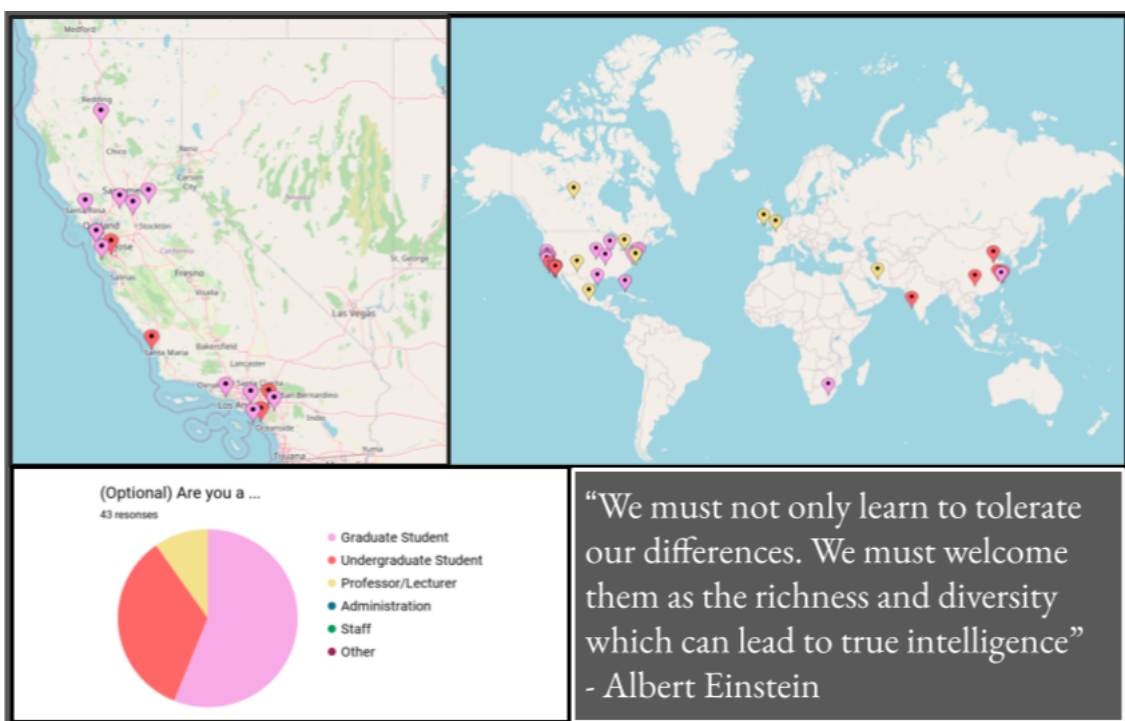
Thank you to everyone who participated in our question of the quarter!

See our results below and please take a brief moment to answer our question for the next newsletter:

### "Who is your favorite scientist and why?"

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## Spring 2021 Question Where did you grow up?



## Research Content

Congratulations to Alvin Garcia on being selected to participate in the DOE's

Office of Science Graduate Student Research Program! Alvin's work is in applying artificial intelligence to classify plasma wave modes in a fusion energy database from the DIII-D tokamak. This DOE fellowship will allow Alvin to travel to the Princeton Plasma Physics Laboratory to conduct his research.

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Xiaodi Du, a former UCI post-doc now working on plasma fusion research at General Atomics, gave a presentation on mapping fast ions in inertially confined plasma using a new type of instrument that images ions using a beam of neutral particles. Current UCI post-doc Javier Martin, and UCI faculty Bill Heidbrink were also co-authors on the paper.

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## The Pipeline

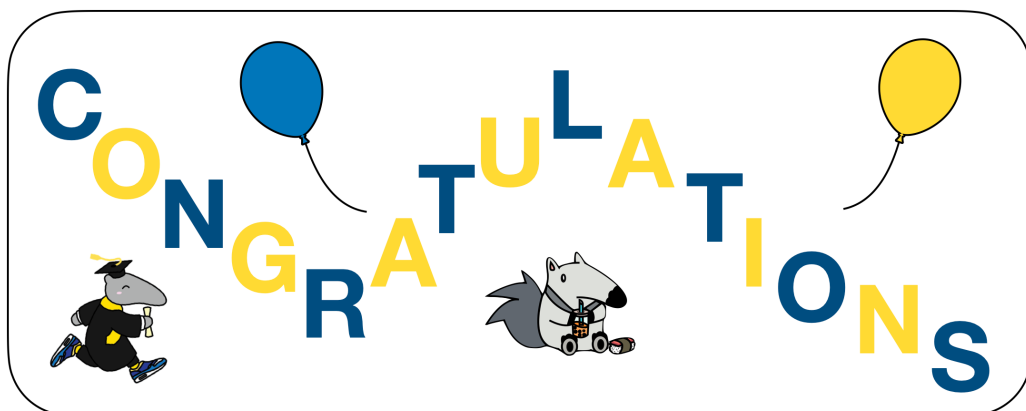
K-12 Outreach is Important!  
Representation and Encouragement is necessary to fix the pipeline at young ages  
Plasma groups need to establish long lasting outreach opportunities at K-12 schools with BIPoC and disadvantaged students

Undergraduate research (UR) is not just producing novel, publishable research!  
UR should focus on providing opportunities to build skills in order to succeed in the future.

We know the pandemic will have long lasting effects on current and future BIPoC students: death of family, unemployed parents, and long-lasting health effects.  
Are we preparing to help them? Are we setting up the infrastructure to fix this collapsing pipeline?

Ernesto Barraza gave a presentation at the APS Division of Plasma Physics meeting on diversity, equity, and inclusion efforts being undertaken in plasma physics. These include the CBAANPS seminar series, and office hours and workshops aimed at encouraging undergraduate students from underrepresented groups to get involved in plasma physics research. Ernesto is working to use a combination of K-12 outreach and undergraduate mentorship to fix the broken pipeline that leads to the lack of diversity in STEM.

## Department News



Congratulations to the following Ph.D. students who successfully defended their theses since our last newsletter publication!

**Dr. Jeffrey Swaney:** "Design and Performance of a Smartphone-based Cosmic

Ray Observatory”

**Dr. Nicholas Beier:** “Relativistic Laser-Solid Interactions Driven by Multiple Wavelengths”

**Dr. Matthew Stanfield:** “Characterization and Generation of Few-Cycle, Relativistically Intense Laser Pulses via Self Phase Modulation”

**Dr. Peter Wagner:** “Using Molecular States to Probe Spin and Self-Assembly Properties of Single Molecules”

**Dr. Dillon Berger:** “Light Dark Matter Coupling to Quarks”

**Dr. Rebecca Riley:** “Nontopological Q-solitons and their Implications for Macroscopic Dark Matter”

**Dr. M. Katy Rodriguez Wimberly:** “Ultra-Faint Dwarf Galaxies: Investigating the Evolution of our Universe & Those Who Study It”



The UCI run FASER experiment was recently featured in a School of Physical Sciences event with panelists Professor Jonathan Feng and Ph.D. student Savannah Shively. Savannah participated in the event live from the Faser tunnel at CERN. If you missed the event, you can watch the recording [here](#).

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UNITY hosted the quarterly [MVP \(Magnifying Voices in Physics\) seminar series](#), featuring Saniya Heeba who works at the intersection of particle physics and cosmology. MVP will return next quarter with another seminar highlighting the journeys and contributions of underrepresented women and non-binary people in physics.

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The department's SciComm fellow, Anne-Katherine Burns, regularly posts short stories about the physics department on the UCI School of Physical Science website. You can read all of her posts [here](#).

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A few pictures from the summer and fall quarter in the department:



Ph.D. students Max Fieg and Anne-Katherine Burns pose atop the French Alps while attending a summer school.





Some creative halloween costumes from around the department, featuring characters from the video game “Hollow Knight” and some gauge theory ghosts haunting a QFT lecture.



A intramural volleyball team of Ph.D. students capped the season with a trip to the playoffs, and finished with a winning record.

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Interested in communicating science to a public audience? The UCI Physics and Astro blog is accepting guest submissions of “bite-sized” physics articles to feature on our website! These are short, jargon-free articles on some aspect of physics or astronomy, whether it be a recent [research paper](#) or [something more creative](#). Anything aimed at a broader audience is welcome to be considered. You can send an email to [physastroblog@uci.edu](mailto:physastroblog@uci.edu) with any submissions, ideas, or questions about writing a guest article.

# Events

Grad students save the date for the Grad Holiday Happy Hour! December 16th, 3-5pm.

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Prof. Steven White will be teaching a graduate level course on Introductory Quantum Computing in the winter quarter. The prerequisite is 215A, and interested students should contact Prof. White.

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Registration for the [GPSRC](#)'s Winter Certificate program Public Speaking by Activate to Captivate is now open. [Click here](#) for more information.

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Interested in practicing explaining your research to a broad audience? Apply to participate in the 2022 Grad Slam competition! In this UC system-wide competition graduate students from many different fields explain their research to a general audience in 3 mins. To learn how you can participate visit the website [here](#) and watch a recording of a recent informational session [here](#).

# Resources

It has been well over a year since this pandemic started, and it still remains important to remember to take care of your wellness through these times. UCI Be Well offers a tool here at this website (<https://bewell.uci.edu/>) for searching UCI wellness programs and initiatives for students, faculty, and staff.

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