



A department with vitality and purpose

Dear UCR Physics and Astronomy community,

Greetings from campus, and from all our faculty, staff, and students. We send you our best wishes for your health, safety, and well being ! This is our annual newsletter, sent to our alumni, retired faculty, and extended department family.

A development I should mention at the outset is that we now have a new chair, namely me. Our previous chair, Professor Ken Barish, stepped down last July after five years of exceptional and meritorious service. I was humbled to have been chosen as the new chair. Professor Shan-Wen Tsai has kindly agreed to serve as the new vice-chair. This past academic year was our first full year back to normal campus activities following covid. The return to fully in-person teaching has been a great joy both for students and faculty. It is great to be back on a campus bustling with people and activity, where faculty can engage with students and students with their peers.

The newest addition to our faculty is Andrew Joe, who will begin in Fall 2023. Andrew earned his Ph.D. at Harvard in 2021 and will join us following a postdoctoral stint at UC Berkeley. He is an expert in optical spectroscopy and transport in 2D materials. He will be setting up a lab to fabricate novel quantum devices, based on so-called spin-valley locking and material twist engineering. He will make a strong addition to our program in quantum information science. We have a faculty search currently in progress in the general area of experimental cosmology, gravitational wave physics, and/or particle astrophysics. This is part of our program to build up on-campus facilities where undergraduates can participate in the detector design and construction of experiments that address some of the most compelling issues in fundamental physics.

Another important development is that, after several years of effort, our

proposal to begin a Ph.D. program in astronomy has been approved. Currently, astronomy Ph.D. students earn a degree in physics, not astronomy, putting us at odds with peer institutes. In the astronomy Ph.D. program, students will take a dedicated set of graduate courses specifically tailored to their needs, rather than the set that is followed for the physics Ph.D. Our Ph.D. program in astronomy is scheduled to begin in fall 2023.

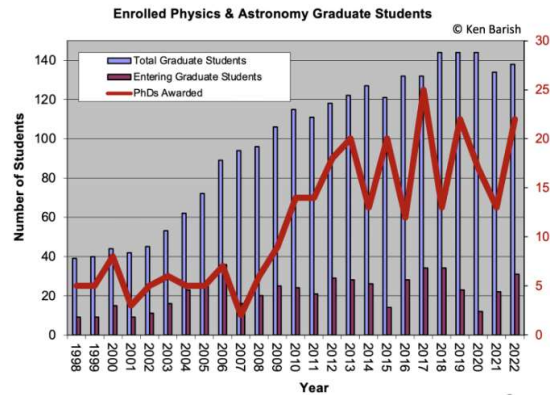
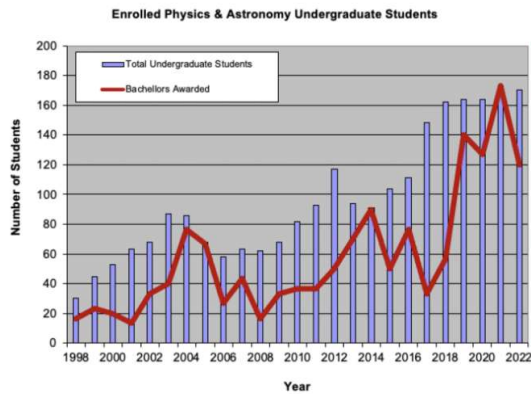
Our undergraduate and graduate programs continue to do well. For the fall 2023 class, our graduate program received 268 applications, more than any other program on campus. The growth in our undergraduate and graduate student populations is shown in the accompanying graphs. We continue to increase research opportunities for students. An example is the current effort of Professor D'Alosio to install a radio telescope on top of the Physics Building for undergraduate use. Similarly, Professor Becker is setting up an optical telescope on Goat Mountain north of Joshua Tree National Park for UCR student research.

This year, we will be hosting two departmental graduation ceremonies, one for undergraduate students and one for graduate students. We hope you will be able to join us! Details on those events are given below.

Best wishes to all !
Owen Long
Chair and Professor
UCR Physics and Astronomy



Growth in UCR Physics and Astronomy undergraduate and graduate populations
The graphs show the number of entering students, and the number of degrees granted, versus calendar year.



UCR Physics and Astronomy by the numbers:

Number of faculty: 42

Number of undergraduate students: 169

Number of graduate students: 151

Number of bachelor degrees awarded in June 2020: 35

Number of Ph.D degrees awarded in June 2020: 17

Recent awards and honors

UCR undergraduate student Peter Carney awarded prestigious Goldwater Scholarship

The scholarship is one of the most prestigious national undergraduate awards in the natural sciences, engineering and mathematics, and was established by Congress as a means to foster the next generation of US scientists and engineers. Of around 5000 applicants, only around 400 awards are made each year.

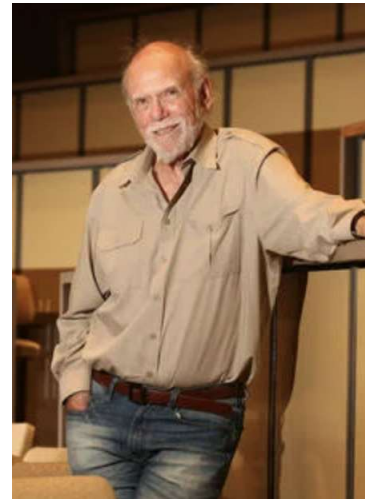
<https://www.physics.ucr.edu/news/2023/04/06/three-highlanders-receive-2023-barry-goldwater-scholarship>



Professor Barry Barish awarded the Copernicus Prize

The prize, from the Polish Ministry of Education and Science, recognizes individuals who have made exceptional contributions to the development of world science.

<https://www.physics.ucr.edu/news/2022/11/17/physicist-receive-copernicus-prize>



Professor Zandi named a Fellow of the American Physical Society

The honor, from the Division of Biological Physics of the American Physical Society, recognizes Prof. Zandi's contributions to the characterization and study of viruses and RNA genomes. In any year, no more than one-half of one percent of the society's membership may be elected as fellows.

<https://www.physics.ucr.edu/news/2022/10/19/physicist-named-fellow-american-physical-society>



Professor Bird named an outstanding referee by the editors of the American Physical Society journals

The highly selective Outstanding Referee program annually recognizes only about 150 of the roughly 88,600 active referees.

<https://www.physics.ucr.edu/news/2022/06/03/physicist-receives-lifetime-award-american-physical-society>



Research news

Professor Zandi models the assembly process of the covid-19 virus

Understanding how the virus assembles could lead to important discoveries, such as the development of antiviral drugs that arrest coronaviruses in their assembly stages.

<https://www.physics.ucr.edu/news/2022/10/03/coronavirus-formation-successfully-modeled-0>



Professor Shi creates new quantum material based on tungsten and tellurium

The development is part of Prof. Shi's program to create new quantum materials, with properties that are superior to the current silicon-based materials, potentially leading to better batteries.

<https://www.physics.ucr.edu/news/2022/09/12/researchers-devise-tunable-conducting-edge>



Professor Yu leads study of dark matter halos in ultra-diffuse galaxies

The study challenges our understanding of galaxy formation and structure in the universe.

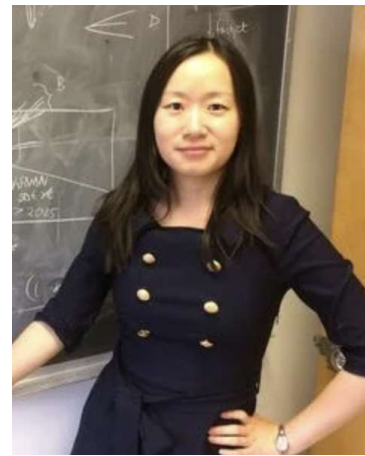
<https://www.physics.ucr.edu/news/2022/09/12/why-are-dark-matter-halos-ultra-diffuse-galaxies-so-odd-0>



Professor Yanou Cui proposes mechanism to test theories explaining the matter-antimatter asymmetry in the universe

The proposal is based on the distinctive signatures that heavy right-handed neutrinos in the very early universe might imprint on the spatial distributions of matter and the cosmic microwave background.

<https://www.physics.ucr.edu/news/2022/09/08/unraveling-mystery-surrounding-cosmic-matter>



Professor Barsukov leads team studying antiferromagnet spintronic devices

Antiferromagnetic spintronic devices hold great promise for creating future ultra-fast and energy-efficient information storage, processing, and transmission platforms.

<https://www.physics.ucr.edu/news/2022/08/23/antiferromagnetic-hybrids-achieve-important-functionality-spintronic-applications>



Professor Yongtao Cui develops novel electronic state in a new type of moiré superlattice

The research could lead to new types of functionality in superconducting materials

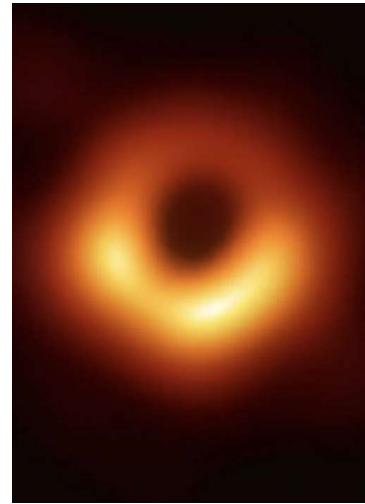
<https://www.physics.ucr.edu/news/2022/08/19/researchers-report-discovery-novel-electronic-state>



UCR study links formation of black holes with self-interacting dark matter

The study investigates the formation of black holes through the self-gravity of a cloud of gas and its dependence on the number of spatial dimensions.

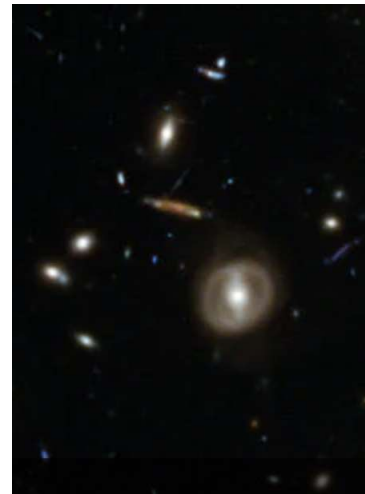
<https://insideucr.ucr.edu/stories/2022/08/05/formation-black-holes-linked-spatial-dimensions>



Professor Bird introduces new technique to identify protoclusters of galaxies

The technique, based on identifying clumps of gas, rather than clumps of galaxies, can find protoclusters that can not be found using other known means.

<https://insideucr.ucr.edu/stories/2022/06/15/astromers-identify-protoclusters-new-technique>



Outreach

UCR Physics Masterclass for high school students resumes after three-year hiatus

Following a three-year hiatus due to covid, the on-campus masterclass in high energy physics resumed this year. The program, held March 20 and 21, was attended by 27 students from Ramona and Hemet high schools.

<https://www.physics.ucr.edu/news/2023/03/29/high-schoolers-get-university-level-education-particle-physics-0>



Physics and Astronomy at the downtown Riverside "Night of Art and Innovation"

A team of 30 participants from the UCR Department of Physics and Astronomy, including undergraduate and graduate students, postdocs, staff, and faculty, participated in the annual outreach event in downtown Riverside.

<https://www.physics.ucr.edu/news/2022/10/21/physics-and-astronomy-night-art-and-innovation-downtown-riverside>



UCR Physics and Astronomy hosts Summer Physics Academy for high school teachers

The 15th iteration of the annual event was held in-person for the first time since 2019.

<https://insideucr.ucr.edu/stories/2022/06/30/local-high-school-teachers-get-date-physics>



Professor Steven Wimpenny, 1956-2022

We are mourning the loss of Professor Stephen Wimpenny, who passed away suddenly and unexpectedly on November 21, 2022. Steve was a friend, a valued colleague, an accomplished scientist, and a dedicated instructor. Legions of Physics 2 students will remember him as a kind and gentle soul. We all miss him very much.

<https://cnas.ucr.edu/news/2023/05/19/memory-stephen-wimpenny-professor-physics>



Invitation to the 2023 Physics and Astronomy Graduation Recognition Ceremonies



The Department of Physics and Astronomy

at the

University of California, Riverside

cordially invites you to attend the

Department Graduation Recognition Ceremonies

honoring the candidates for the Bachelor of Science, Masters, and Doctoral degrees

The department ceremony for undergraduates will take place
Friday June 9, 2023 in the Humanities and Social Sciences
Building (HMNSS) Room 1501

The undergraduate awards to be given include

- Robert L. Wild Family Award: Outstanding 1st year undergraduate
- Brown Williams Endowment Award: Outstanding 2nd year undergraduate
- R. Stephen White Endowment Award: Outstanding 3rd year undergraduate
- R. Stephen White Endowment Award: Outstanding senior undergraduate

The department ceremony for graduate students will take place
Saturday June 3, 2023, with a lunch at noon in the Barkas
Lounge of the Physics building followed by the ceremonies in
Chung Hall Room 138

The graduate student awards to be given include

- Outstanding Teaching Assistant
- Albert Staats Award for Exceptional Skills in Designing and Building Physics Apparatus
- Benjamin C. Shen Memorial Award: Outstanding 1st year graduate student

- Benjamin C. Shen Memorial Award: Outstanding Junior Graduate Student researcher
- Anne Kernan Award: Outstanding Senior Graduate Student Researcher
- Robert T. Poe Memorial Scholarship Award for Outstanding Ph.D. Graduate



Copyright © *|CURRENT_YEAR|* *|LIST:COMPANY|*, All rights reserved.
|IFNOT:ARCHIVE_PAGE| *|LIST:DESCRIPTION|*

Our mailing address is:

|HTML:LIST_ADDRESS_HTML| *|END:IF|*

Want to change how you receive these emails?
You can update your preferences or unsubscribe from this list.

|IF:REWARDS| *|HTML:REWARDS|* *|END:IF|*