

University & Department Rankings

UCI received attention as the first public university to win two Nobel Prizes in different subjects - physics and chemistry - in the same year (1995). The latest *US News and World Report* ranks the university as #7 in Top Public Schools. Our department is ranked #22 Best Physics Departments in the World by the *Shanghai Ranking 2018*. Our department continues to grow and thrive through creating an inclusive environment for all. Come join our dynamic department!



UCI's Science Plaza

Great Location

UCI is located in a beautiful area, roughly an hour's drive south of Los Angeles and north of San Diego and a mere 5 miles from the beach. Camping and rock climbing in Joshua Tree National Park plus skiing in the San Bernardino Mountains are just a couple hour's drive. San Francisco and Yosemite are even within an easy day's drive. The weather is excellent, and the area has more cultural and recreational opportunities than a conscientious student can routinely take advantage of!

Plus, Physics Ph.D. students are offered on-campus housing and financial support. To learn more, visit <https://www.physics.uci.edu/>

Our Department's Student Groups



PACE Leaders: Prof. Franklin Dollar & Grad Students: (Left to Right) Arianna Brown, Rebecca Riley, Katy Rodriguez Wimberly

PACE

Physics and Astronomy Community Excellence

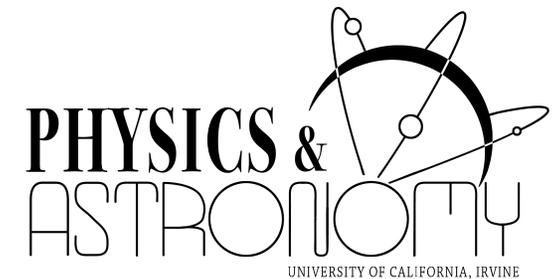
PACE is a graduate student led mentoring organization - peer-mentoring programs by students for students. We aim to normalize a holistic approach to success as a UCI physics student! Visit our website to learn more - <https://uci-pace.github.io>

Physics Grad Caucus

PGC is a community of graduate students that seeks to support and improve academic and career success, foster individual and community well being, and be a voice for graduate students in grad life within our department. Visit our website to learn more - <https://sites.uci.edu/physicsgradcaucus/>

Women in Physics & Astronomy

The mission of WiPA is to support and represent anyone identifying as a woman or non-binary in physics and astronomy. We are a graduate student led club composed of undergraduate, graduate, and postdoc members. To learn more about our initiatives and social events, visit our website - <https://sites.uci.edu/>



"From particles to galaxies and beyond!"

Astrophysics

Faculty, postdoctoral scholars, and students in the Astrophysics group at UC Irvine are engaged in research in diverse areas of astronomy and astrophysics. Current research areas include cosmology and particle astrophysics, observational and theoretical studies of galaxy evolution, dark matter, black holes, quasars, and galaxy clusters, climate and habitability of exoplanets, and the design of optical telescopes and instrumentation.

UCI Center for Cosmology unites astrophysicists and particle physicists carrying out theoretical, observational, and experimental research on the composition, origin, and fate of the Universe, the fundamental physics governing it, and the evolution of galaxies and structure in the Universe. <https://www.physics.uci.edu/research/astrocosmo>

Particle Physics

Particle physics research at UC Irvine spans a broad range of experimental and theoretical topics.

The experimental group, founded by Frederick Reines, who won the Nobel Prize for the discovery of the neutrino, currently conducts research at the energy, intensity, and cosmic frontiers. UCI experimentalists play leading roles in collaborations that are searching for new particles and interactions at the Large Hadron Collider, exploring neutrino masses and mixings, looking for new signals of flavor violation, searching for ultra-high energy cosmic neutrinos and dark matter, and probing the nature of cosmic acceleration and dark energy through astronomical surveys of the large-scale structure of the Universe.

Particle theorists at UC Irvine exploit innovative ideas in particle physics, astroparticle physics, and cosmology, and at the interfaces of these areas to address outstanding problems in a wide variety of fields. These include searches for new particles and forces at colliders, dark matter particle candidates and their observable signatures, neutrino physics, particle cosmology, and quantum gravity. <https://www.physics.uci.edu/research/particle>

Biological Physics

Biophysics seeks to understand the structure, dynamics, interactions, and function of biological systems at a fundamental level using approaches and conceptual frameworks from physics and mathematics. Biophysicists create theoretical, mathematical, and computational models of biological phenomena that scientists harness to understand and predict biological outcomes. It impacts many fields within fundamental biology and health sciences, including developmental biology, molecular biology, systems biology, and human disease.

The UCI Biological Physics Group uses theoretical and experimental approaches to explore biophysical problems at the molecular and cellular scales. Experimental methods include nanopore fabrication, microfluidics, fluorescence microscopy, single molecule dynamics, optical tweezers, optical imaging development, and interactions of light. The use of these techniques advances basic scientific knowledge in physics and biology and contributes improvement of disease treatment. In addition, the Biological Physics Group collaborates with faculty at the UCI Beckman Laser Institute, the Departments of Physiology and Biophysics, Molecular Biology, Chemical Engineering, and Biomedical Engineering, and the Medical Physics Group, among others. <https://www.physics.uci.edu/research/condmatter>

Medical Physics

<https://www.physics.uci.edu/research/medical>

ChaMP

The ChaMP program is designed to prepare M.S. and Ph.D. scientists for modern careers in Physical Sciences, where cross-disciplinary education with an emphasis on applications is in increasing demand. Designed to appeal to students with backgrounds in Chemistry, Physics, or Engineering, the program unifies physical and chemical approaches to the study of matter, through the applied science of modern materials. <http://www.champ.uci.edu/>

Condensed Matter Physics

Condensed matter physics is the study of physical phenomena in solids and liquids. In the past, work by condensed matter physicists led to many of the most important technologies of today, such as transistors, lasers, semiconductor technology, LEDs, solar photovoltaics, MRIs, magnetic hard drives, etc. Today, condensed matter physics focuses on new types of materials and phenomena, including exotic quantum phenomena such as superconductivity and superfluidity, some of which may become the leading technologies of the future.

UC Irvine has a large condensed matter physics group of both experimentalists and theorists. Much of this group works on what one might call quantum materials--materials exhibiting exotic behavior because of the effect of quantum mechanics. This include high temperature superconductivity, superfluids, quantum spin liquids, frustrated magnetic systems, quantum Hall systems, topological insulators, and topological quantum computing. members of the group work on nanoscale physics, including the properties of single molecules on surfaces, or graphene, on nanotubes and nanopores, on spintronics, and on "soft condensed matter". <https://www.physics.uci.edu/research/condmatter>

Plasma Physics

Plasmas are gases of charged particles. Plasmas are by far the most common phase of ordinary matter in the universe, both by mass and by volume. Stars (including our Sun), interstellar and intergalactic space are all plasma. Closer to Earth, the magnetosphere, aurora, and lightning are natural plasmas. Industrial applications include lighting and materials processing, especially processing of semiconductors. Potential applications include compact particle accelerators and controlled fusion energy. Faculty at UC Irvine are engaged in all of these areas: natural plasmas, industrial applications, plasma accelerators, and magnetically confined fusion energy. <https://www.physics.uci.edu/research/plasma>