

2025 Physics Department Welcome

A Year in Pictures

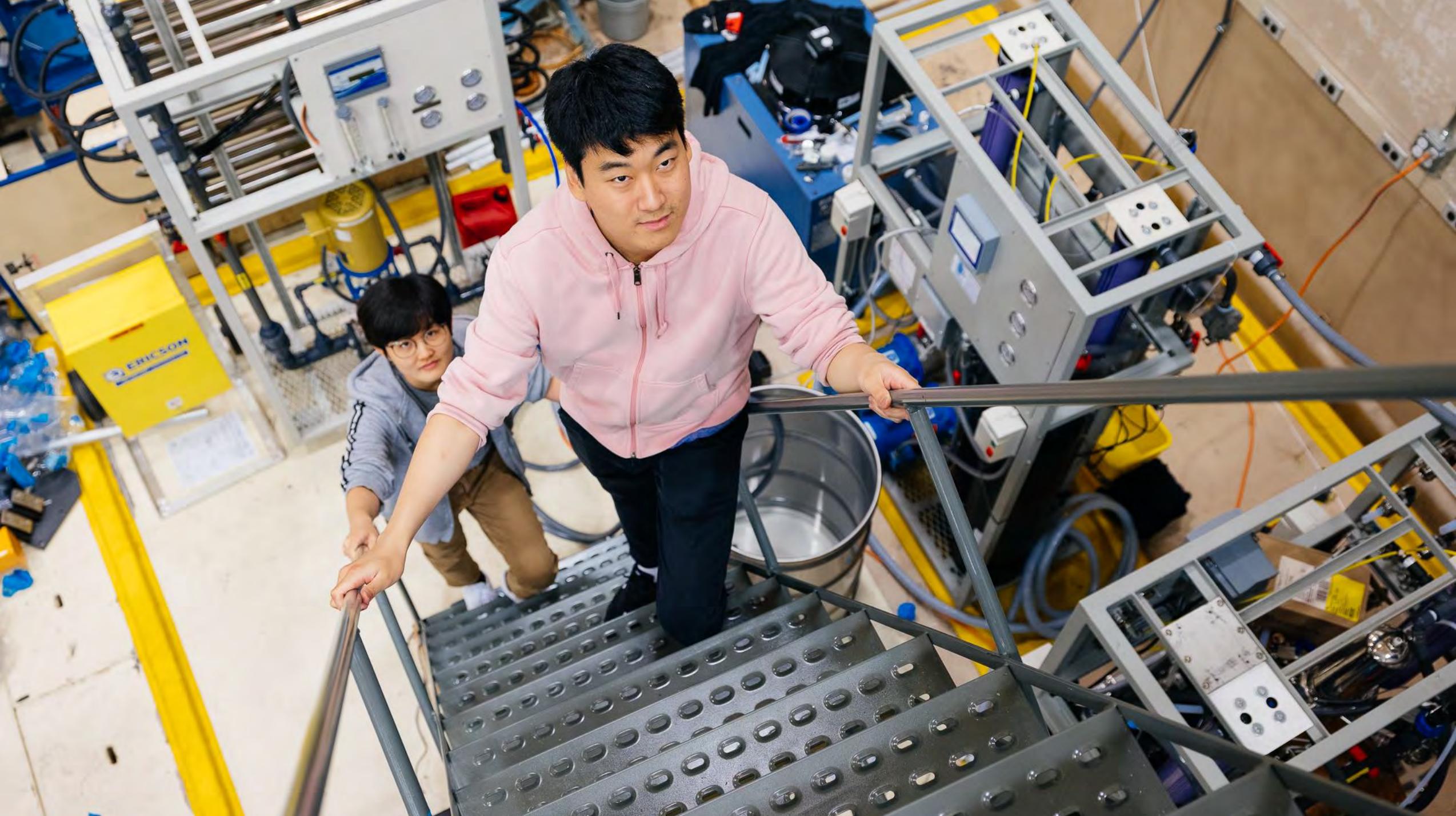
Photos/Compilation: Sarah Wittmer

Flutist: Divyansh Shrivastava

www.youtube.com/@divyanshshrivastavaflutist



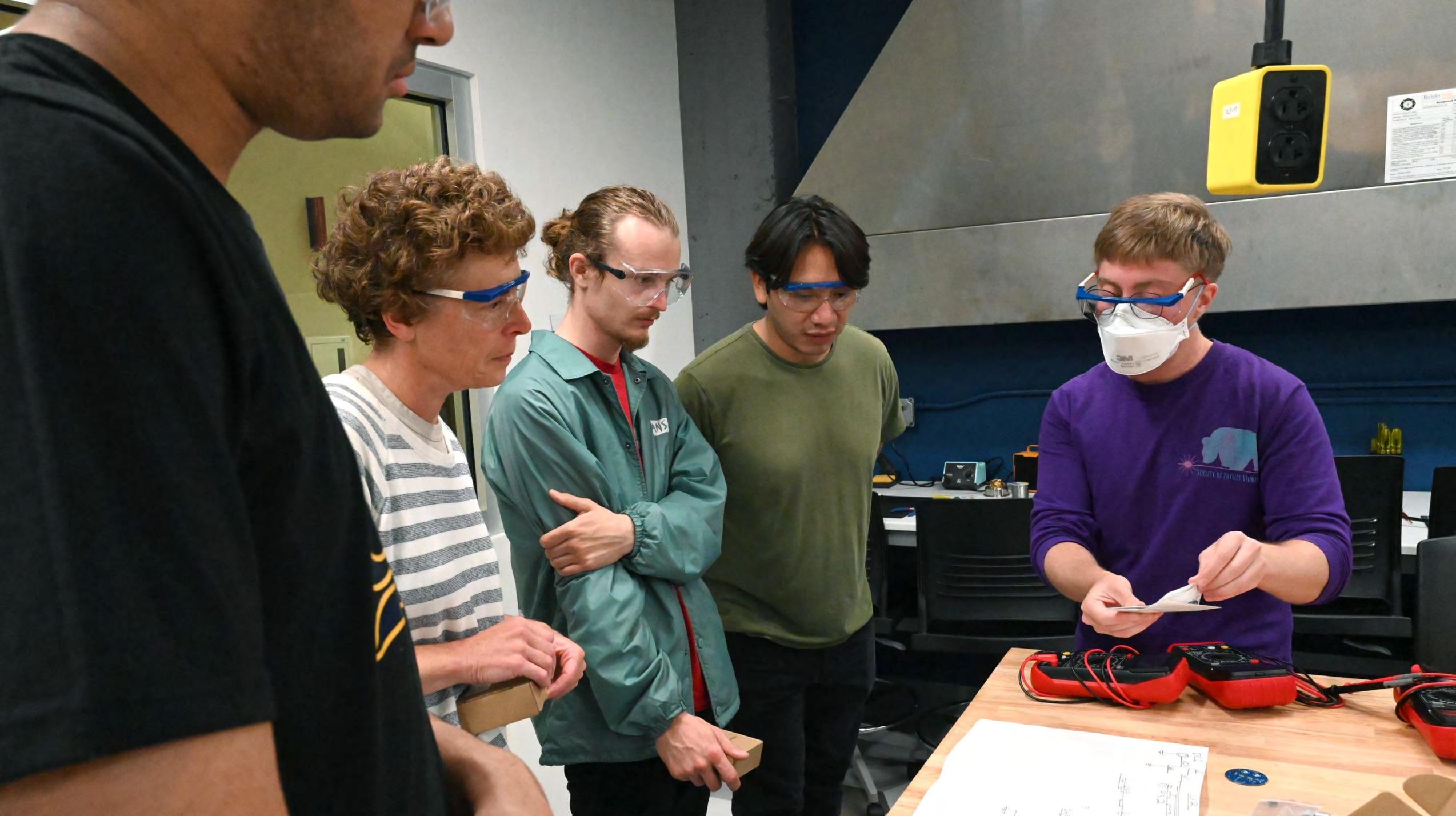




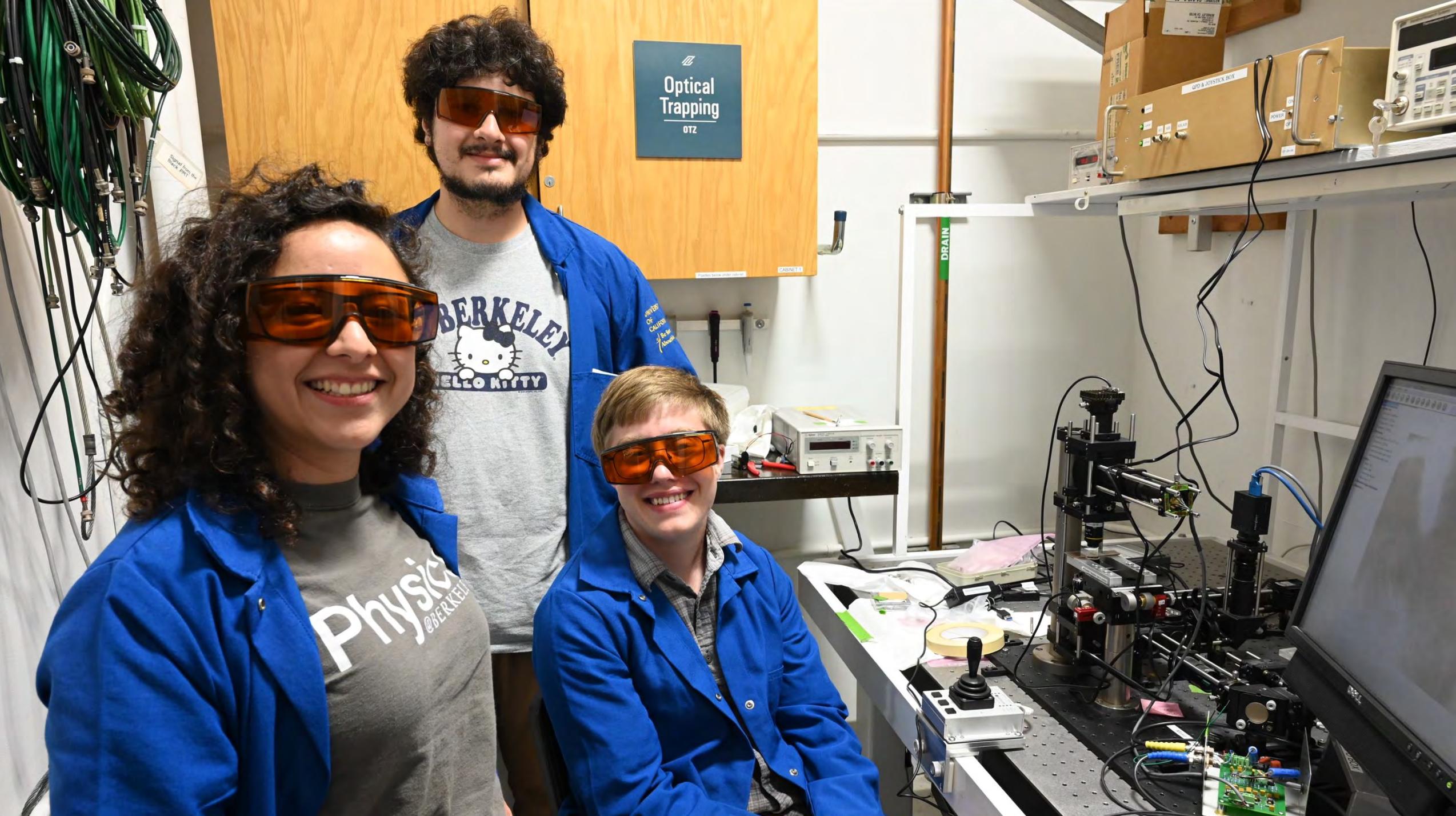












Optical Trapping
OTZ

BERKELEY
HELLO KITTY

Physicist
@BERKELEY

LAPD & JOYSTICK BOX

DRAIN

**BERKELEY
FUTURES
IN PHYSICS**

378





Faculty
Haojun Yu
University of Toronto

Faculty
Maitane Muñoz-Almagro
University of Toronto



372

Sharon Kukawitz
VP of Operations

Sharon Kukawitz
VP of Operations







Shining Lights

UC Berkeley

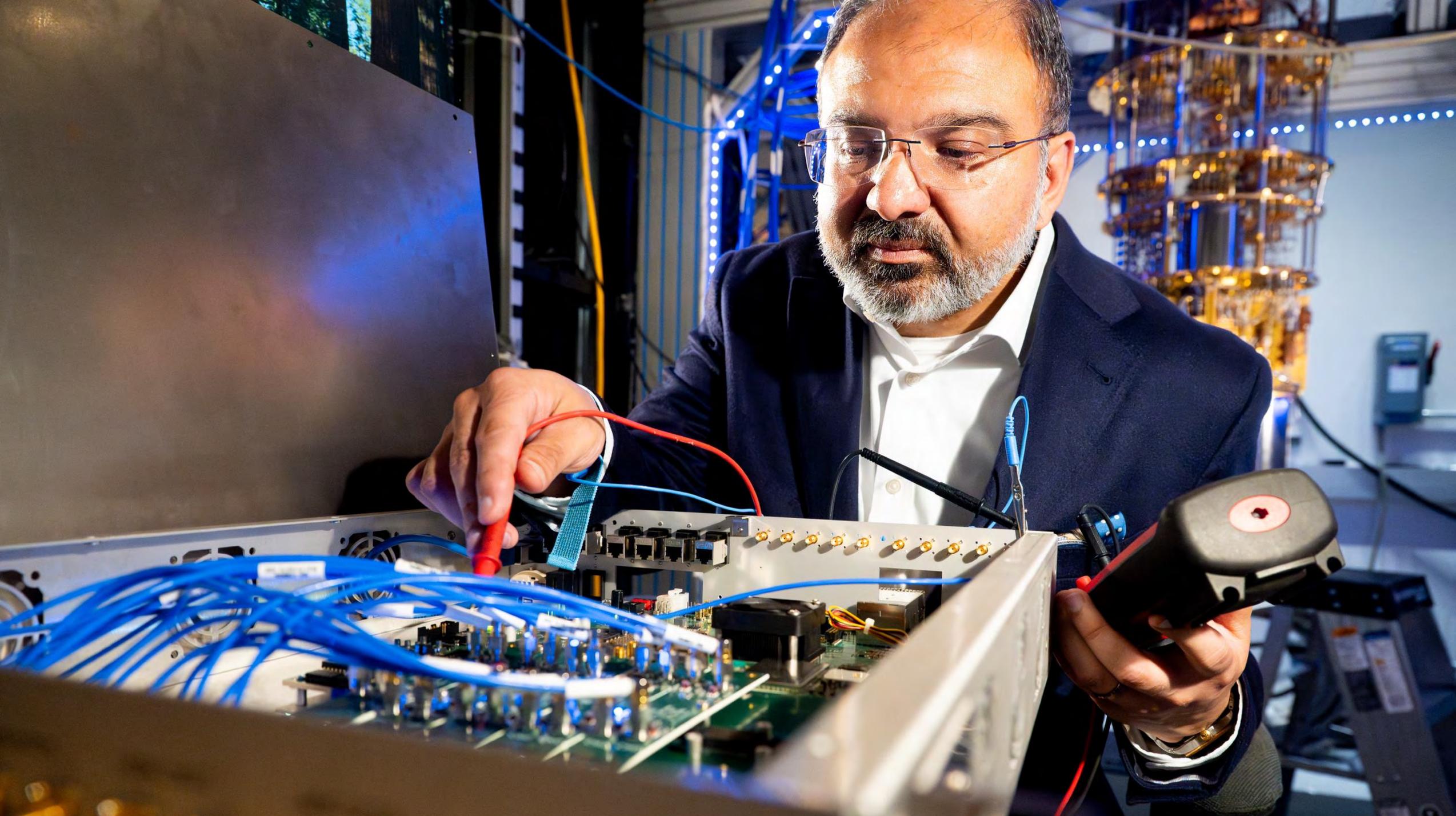






















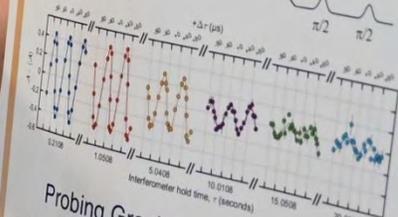
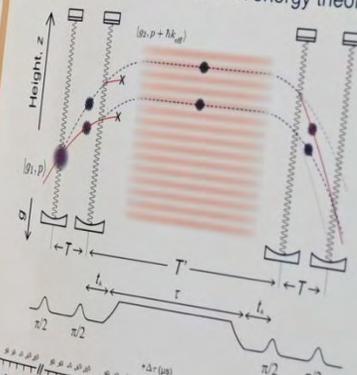


Quantum technology

Maryrose Barron
Department of Physics, University of California, Berkeley

Cavity atom interferometry for precision gravity & beyond

Atom interferometry allows laser-cooled atoms to be used to precisely measure accelerations. In particular, we use an intra-cavity optical lattice to trap the interferometer; this offers clean wavefronts, allowing long coherence times for megaradian phase shifts which translate into sub-ppm gravitational measurements. This has allowed researchers to measure blackbody radiation potentials and set limits on dark energy theories!

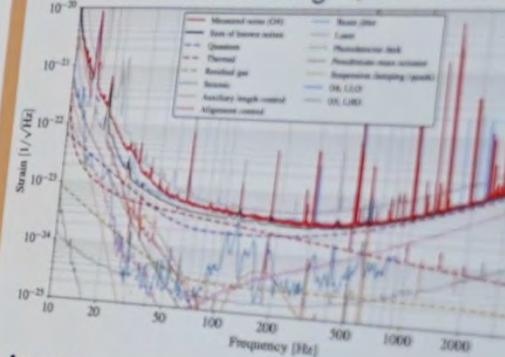


Probing Gravity Using Cavity AI

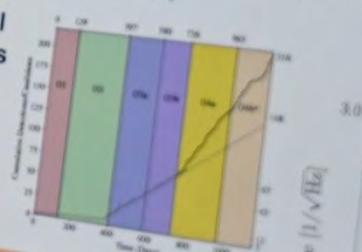
- Atoms undergo Bloch oscillations in the lattice to stay trapped against gravity.
- Observe the phase shift:



LHO noise budget, Dec 2020



Astrophysical detection rates steeply increase with frequency-dependent squeezing!



What's next for our group?

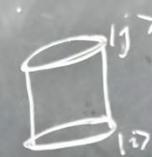
- Building up the new experiment!
- Hope to achieve UHV by next year!
- Designing the optics for the in-vacuum housing
- Additional upgrades to utilize Sr as our new atom, as well as single atom imaging!

W. Ja, LIGO instrument

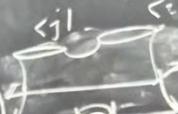




Quantum Gr



$$\langle ij | \rangle = \overline{\langle ilj \rangle} = \delta_{ij} + \dots$$



$$\langle ij | \rangle^2 = \overline{\langle ilj \rangle}^2 = \delta_{ij}(\dots)$$

$$\langle ij | \rangle^2 - \overline{\langle ilj \rangle}^2$$

$$O(1) = \dots$$

H is well-posed

and we have $H(1)$

and i can

even differ

$\sigma^2 = K \dots$

when



Traditional

$D \phi e^{-S}$

Dimensionality Control

Supramolecular Assembly

Phase Transition and Ferroelectricity

Autocatalytic Reactions for

Climate Physics Reading Group

Who are we?
We are physics PhD students at Berkeley applying our skills to studying climate issues. We meet once a week to review textbook climate physics, discuss the latest research for climate physicists, and read papers!

Why study climate?
Climate is a perfect problem for physicists:

- Relatively simple and tractable
- Rich in physics and interdisciplinary connections
- Many open questions
- Physicists also drive clean energy solutions in solar, batteries, hydrogen, desalination, and more.

Much to discover!
There is much debate over the future of carbon, solar, and wind energy. The climate physics community is working to understand the underlying physics and to develop better models and data analysis tools. This is a great time to get involved in climate physics.

Study real-world problems that affect you and your community directly...

Q&A tomorrow from 1-2pm after lunch. You can also join our group for lunch today.

"But I have no background in climate science!"

Who do we work with?

- High-energy astrophysics
- Atmospheric and oceanic sciences
- Environmental science
- Energy
- Earth and planetary science
- Applied physics
- Chemical and biological physics
- Quantum optics
- Plasma physics
- Particle physics
- Nuclear physics
- Astrophysics
- Geophysics
- Atmospheric and oceanic sciences
- Environmental science
- Energy
- Earth and planetary science
- Applied physics
- Chemical and biological physics
- Quantum optics
- Plasma physics
- Particle physics
- Nuclear physics
- Astrophysics
- Geophysics

Pods
Berkeley Physics

Who We?
The program is a peer-to-peer program that supports women and non-binary students.

What Do We Do?
Pods holds regular events throughout the year. Small pods of 6-10 students meet every other week throughout the semester, with coffee hours on the off weeks.



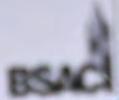
What?
IGenSpectrum Gender Spectrum that aims to provide a safe place for queer students within the UC Berkeley community.





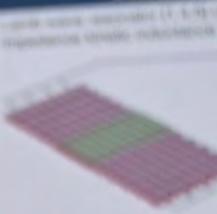

Enhanced Quantum Emitters in Silicon

(Shengyuan) Zhang, Hantao Song, Nicolo Fiaschi, Professor Ap Dzingiraj



A Quantum Nano-Electromechanical Transducer based on Interface Piezoelectricity

Kadrican Gulicovic, Professor Ap Dzingiraj



$$P_{ij} = \frac{1}{V} \frac{\partial \epsilon_{ij}}{\partial x_k}$$



High frequency piezoelectric resonator

Measuring the strain signal directly & simultaneously the piezoelectricity by measuring the voltage

Ap Dzingiraj

Piezoelec

ng, Kadrican

Professor Ap





PHYSICS

NEXT STEPS

Range of MOT properties

Atom Number	Density	Loading Size
23	10 ¹⁸ cm ⁻³	10 ¹⁸ cm ⁻³
87	10 ¹⁸ cm ⁻³	10 ¹⁸ cm ⁻³

Optical Cooling

480-680 nm

10¹⁸ cm⁻³

Time and loss mechanisms

Our MOT operates between 10¹⁸ and 10¹⁹ cm⁻³, limiting the MOT's lifetime. We can constrain it below 10¹⁸ cm⁻³ by leakage out of the MOT transition to be below 2x the and the light-loss coefficient to

REFERENCES

[1] G. Rauber, *Journal of Physics: Atomic, Molecular and Optical Physics*, **41**, 013001 (2008)

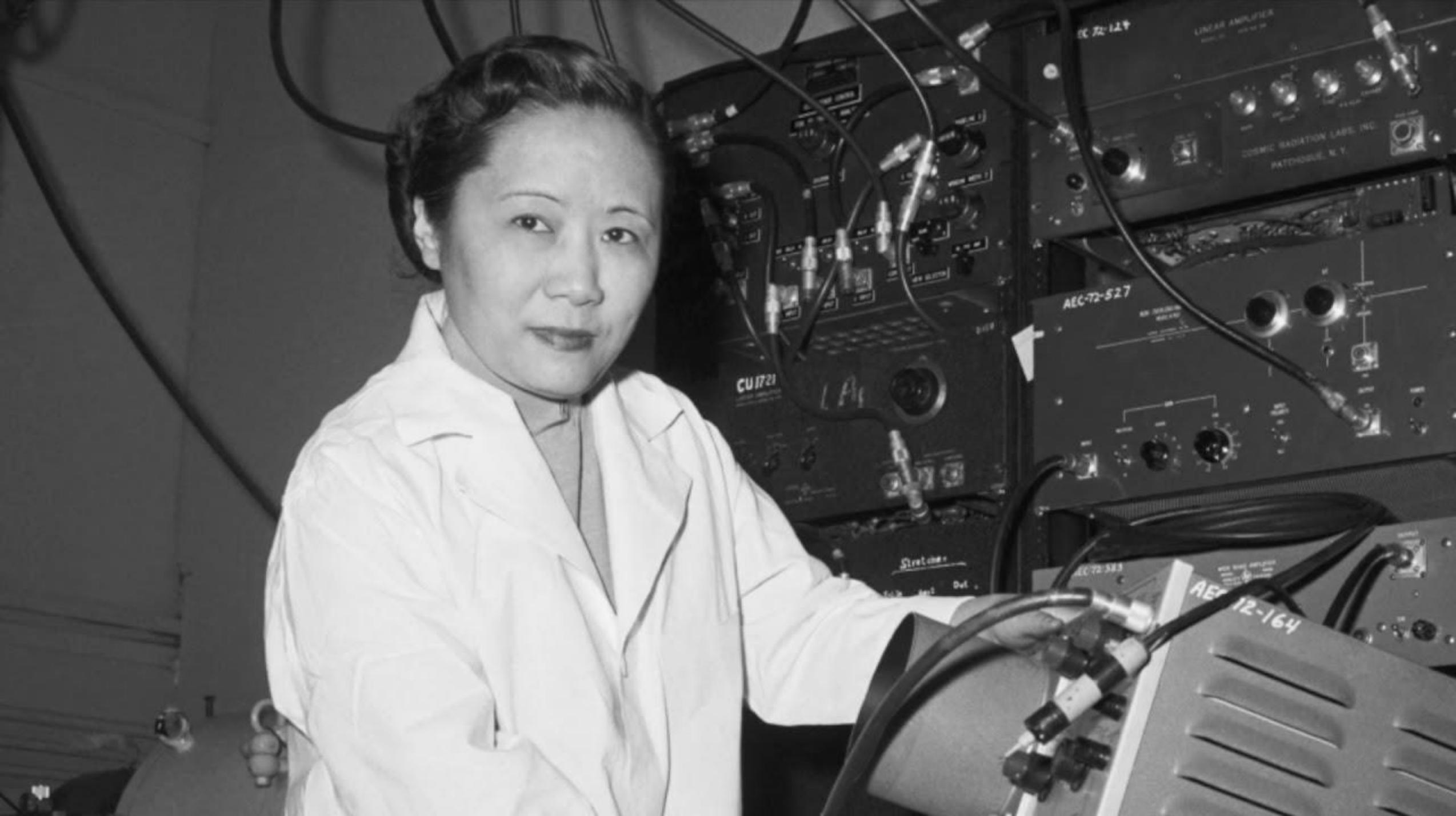
[2] G. Rauber, *Journal of Physics: Atomic, Molecular and Optical Physics*, **41**, 013001 (2008)

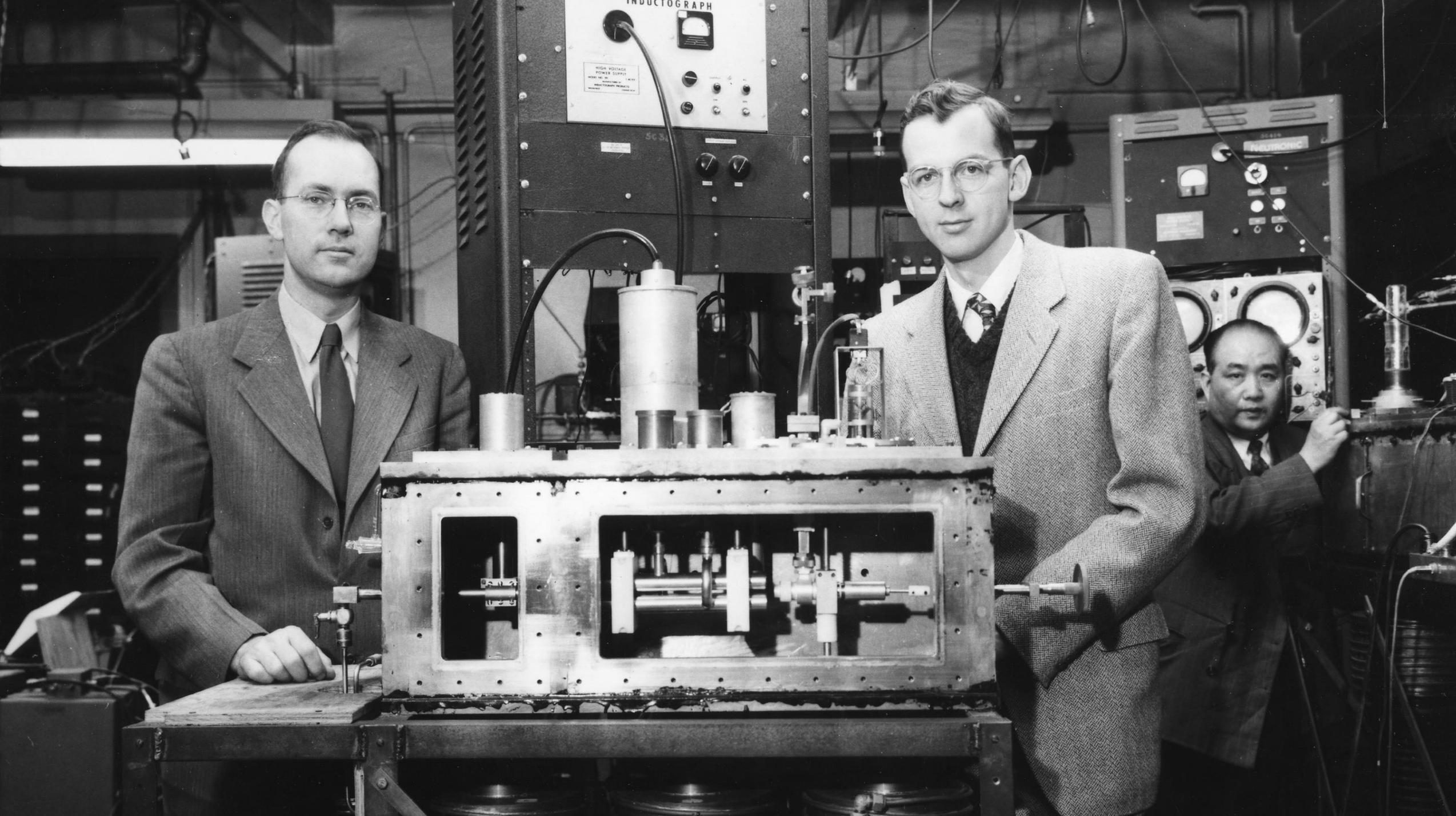
[3] G. Rauber, *Journal of Physics: Atomic, Molecular and Optical Physics*, **41**, 013001 (2008)

[4] G. Rauber, *Journal of Physics: Atomic, Molecular and Optical Physics*, **41**, 013001 (2008)













$$\vec{M} = -gM_B \hat{S}$$
$$\vec{M} = -gM_p \hat{S}$$

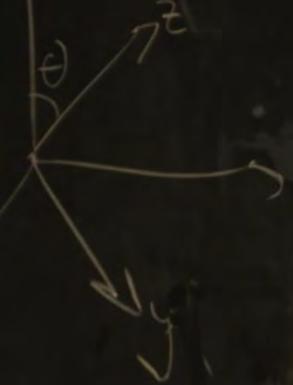
ax Vec	space	$S(x)$	π
pseudovector	\mathbb{R}^3	cosine	-
vector	\mathbb{R}^3	sine	+

Modeling Substellar Microturbulence

INTRODUCTION

IMPLEMENTING BROWN DWARF CHARACTERISTICS





DEF
ASTRONAUT



Berkeley Physics



Abstract
The two-body equation
MULTI-P

International Market, government on the ground
Program on Health and Food Safety

Abstract
MULTI-P
SUMMER





ed un
logico di
stica

Introd

In theoretical physics the relativistic wave equations have been an important subject of investigation over the years, with many controversies, problems and successes. One of the most important is the Dirac equation [1], that has been the basis for the study of quantum electrodynamics (QED), QCD and electroweak theory. This equation is a relativistic equation used to describe a bound spin-1/2 particle, originally developed by Paul Dirac under the action of an external potential, obtaining successful results in determining the fine structure of the Hydrogen atom.

Further, for two- and n-body bound systems many attempts have been made to its importance for atomic, nuclear and hadronic physics. A direct approach to the Dirac equation is the straightforward sum of the individual contributions. Hamiltonians that result in the Dirac equation [2], which we call here Dirac equation for many-body systems.

Despite the results of the Dirac equation, a formal difficulty has arisen, due to the existence of negative energy states produced by the Dirac equation. The solution of this problem (CP) [3] (fundamentally it consists in the differential equation of the Dirac Hamiltonian plus a local interaction term, that is, the Dirac equation for the many-body systems) has been proposed in [4].

The Dirac equation

In the Dirac equation, the relativistic wave equation, the Dirac equation is a relativistic wave equation, which is the sum of the Dirac equation and the Dirac equation for the many-body systems. The Dirac equation is a relativistic wave equation, which is the sum of the Dirac equation and the Dirac equation for the many-body systems.



CalDay in Physics

Berkeley Physics

through physics student
groups



ANNIE



ARCHIE



We miss
you
Annie









Berkeley Physics

UC BERKELEY
EARTH & PLANETARY SCIENCE







Berkeley Physics

Cal Day











2024 Emilio Segrè Lecture

Pablo Jarillo-Herrero

MAGIC ANGLE GRAPHENE:
THE TWIST & SHOUT OF QUANTUM MATERIALS





**INTERNATIONAL
HOUSE**
UNIVERSITY OF CALIFORNIA, BERKELEY



2025
OPPENHEIMER
LECTURE



PATRICK A. LEE
EMERGENCE OF NOVEL PARTICLES IN
QUANTUM MAGNETS



INTERNATIONAL
HOUSE
UNIVERSITY OF CALIFORNIA, BERKELEY



math:

the universe's code
or human creation?



$\int \frac{1}{x} dx = \ln|x| + C$

$\frac{1}{x^2} = x^{-2} \Rightarrow \frac{d}{dx} x^{-2} = -2x^{-3} = -\frac{2}{x^3}$

$\frac{d}{dx} \ln|x| = \frac{1}{x}$

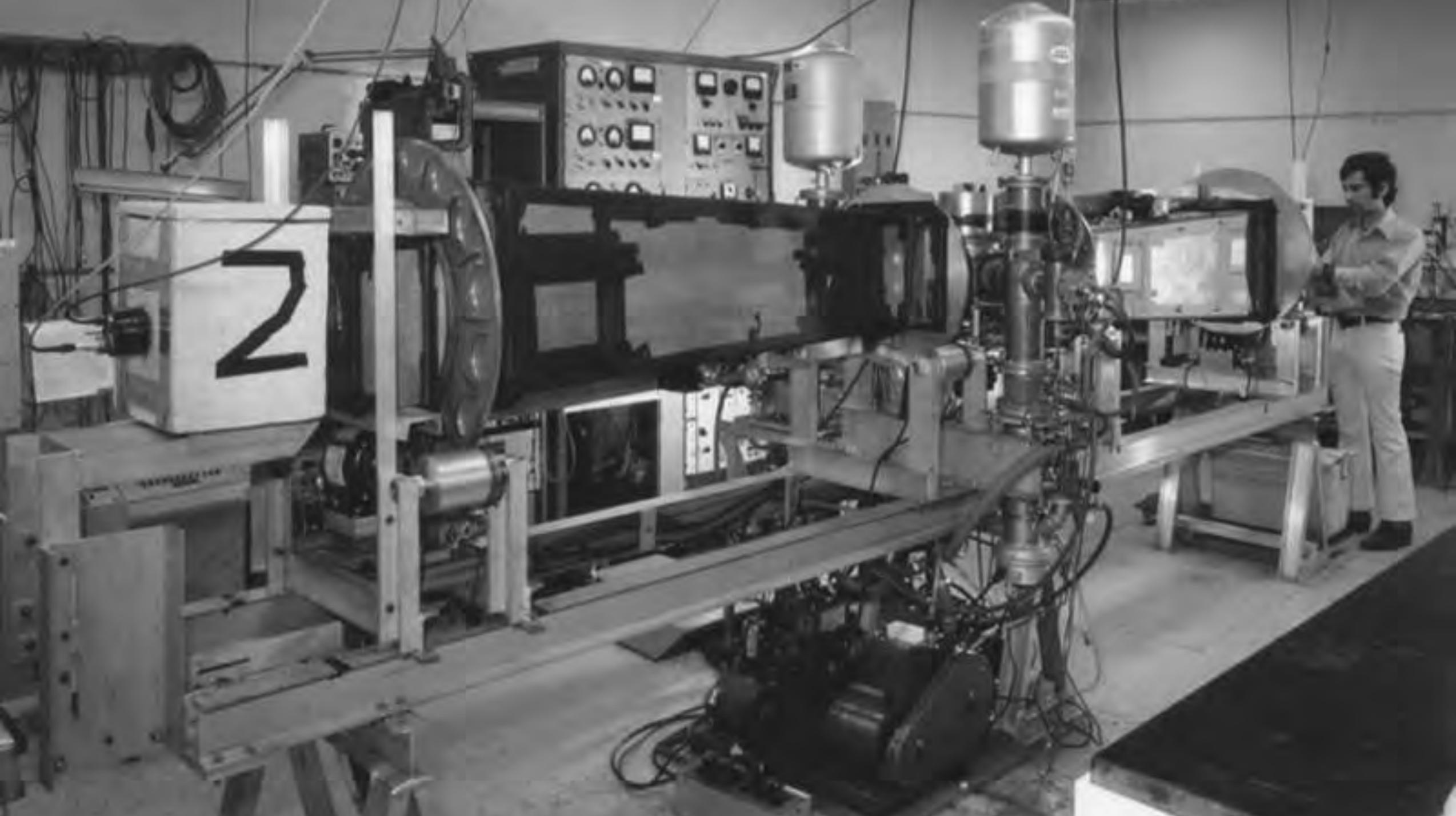


















BERKELEY



BERKELEY

BERKELEY



CLASS OF 2025



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BERKELEY



BERKELEY



Tehya E. Andersen
Physics, M.A.
Class of 2023

HOKIES







BERKELEY

BERKELEY

CLASS OF 2025

BERKELEY

Kenneth Ng
Academic Affairs
Vice President





















UNIVERSITY OF CALIFORNIA
BERKELEY
DEPARTMENTAL CITATION
AWARDED TO
Troy Tsubota
IN RECOGNITION OF OUTSTANDING
DEPARTMENTAL ACCOMPLISHMENT IN
PHYSICS

D. A. ...
CHANCELLOR
A. ...
DEPARTMENT CHAIR





Our Science

OUR HISTORY

A Tradition of Scientific Discovery

Physics continues to flourish at Cal

From accelerators to atoms, achievements in a wide spectrum of scientific disciplines continue to bring distinction to the department in the form of prizes, technology transfer, impactful papers, and distinguished alumni.



QUANTUM GRAVITY & QUANTUM INFORMATION

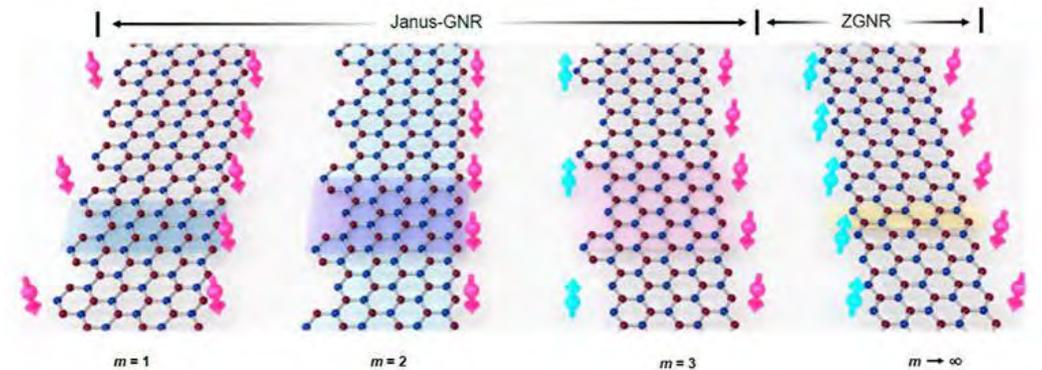
TESSERACT Joins the Hunt for Dark Matter

Historically, most dark matter searches have hunted for two particular kinds of dark matter: ultra-light axions and heavier WIMPs (weakly interacting massive particles). But the new TESSERACT experiment searches in between these regimes, looking for low-mass dark matter that's about a hundred to a thousand times lighter than a WIMP.



Discovery of Janus Graphene Nanoribbons

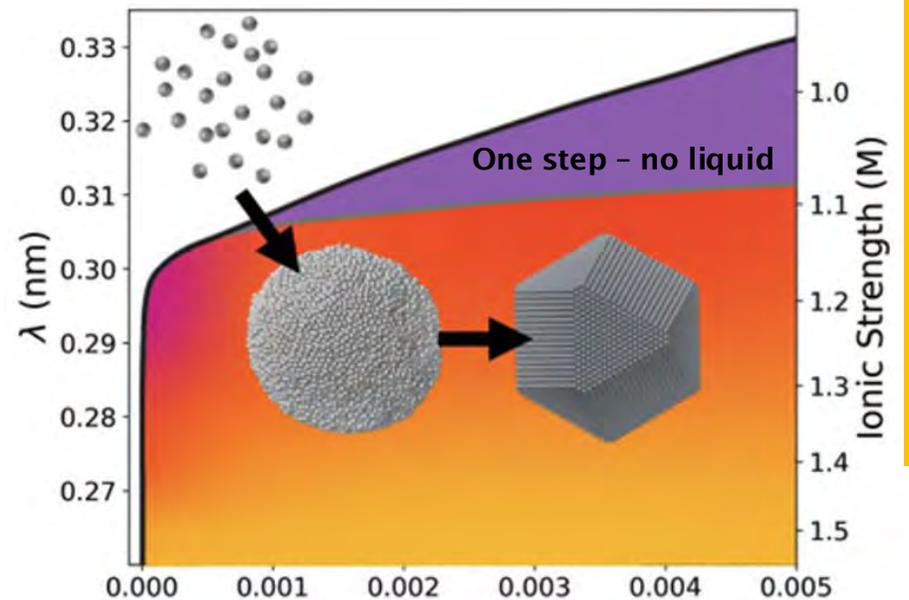
A joint experiment-theory study, conducted by a theory team led by Professor Steven Louie in collaboration with experiment teams in Singapore and Japan, has made a groundbreaking discovery in the design, synthesis and physical understanding of a novel type of graphene nanoribbons with unforeseen and tunable magnetic behaviors.

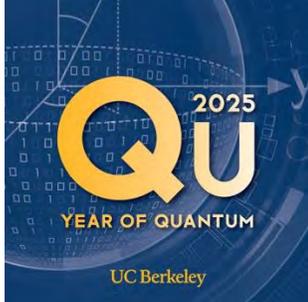


ATOMIC, MOLECULAR, OPTICAL

Perfecting The Art of Growing Crystals

A new study from the Naomi Ginsberg Group tackles the challenge of controlling how tiny particles—called nanocrystals—come together to form larger, ordered structures. Using powerful X-ray scattering techniques, they discovered that crystallization does not always happen in a single step.



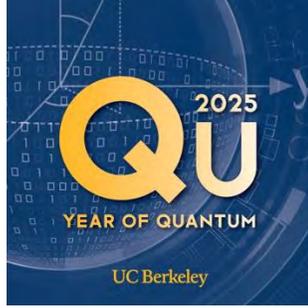


QUANTUM COMPUTING

Making Noise-resistant Superconducting Qubits at Scale

A research team led by scientists at Lawrence Berkeley National Laboratory and UC Berkeley has developed a new fabrication technique that could improve noise robustness in superconducting qubits, a key technology to enabling large-scale quantum computers.

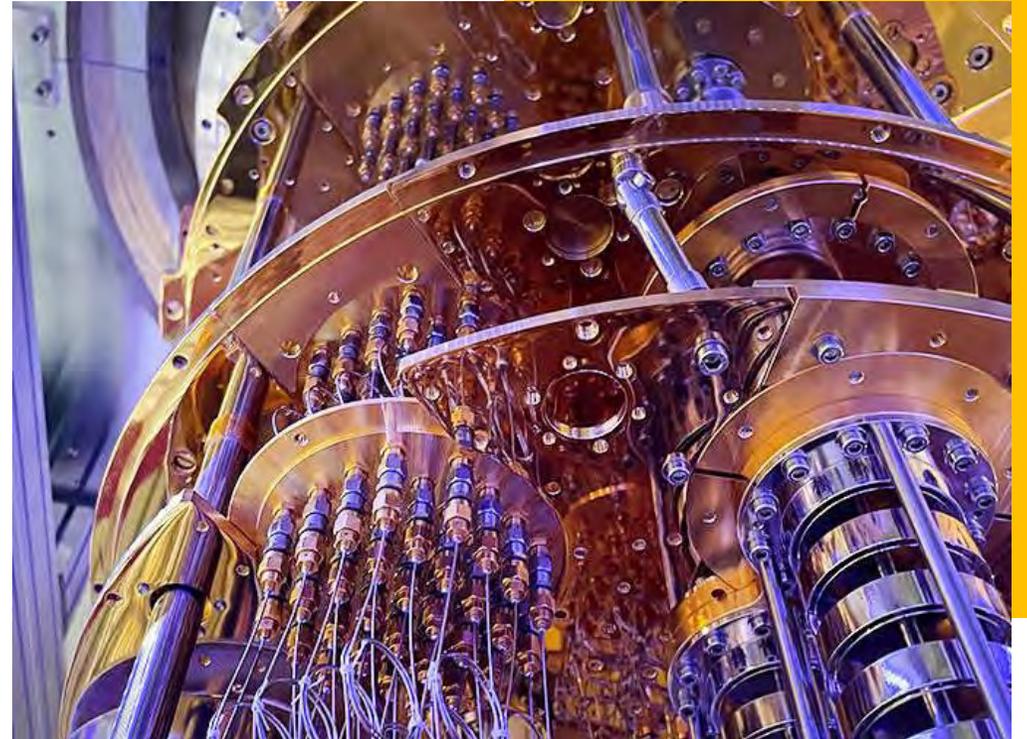




QUANTUM COMPUTING

A Quantum Partnership

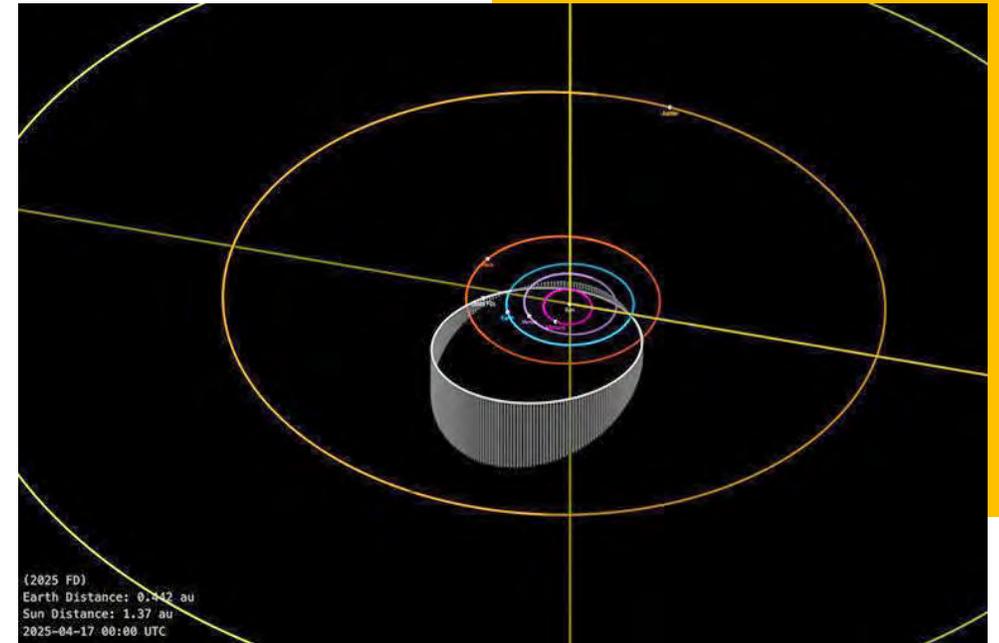
UC Berkeley has launched one of its first major partnerships in the fast-growing quantum computing industry, joining forces with Switzerland-based company YQuantum to advance cryogenic hardware essential to next-generation quantum computers.



PHYSICS AND ASTRONOMY

Undergrads Discover New Asteroid

Is our current system for identifying near-Earth asteroids catching all viable candidates? According to students in UC Berkeley's Undergraduate Laboratory for Physics and Astronomy (ULAB), the answer is no. Their methodology for searching astronomical images led to the discovery of a new object: Asteroid 2025 FD.



Our Centers

NSF Physics Frontier Center (N3AS)

N3AS

Theory and computation for multi-messenger astrophysics

Science Mission

Neutrino physics and astrophysics, nuclear astrophysics topics ranging from supernova and neutron star modeling to dark matter, and fundamental symmetries.

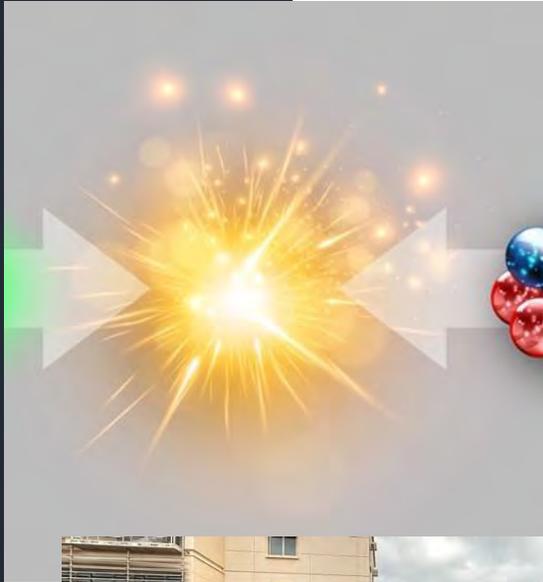
Research Foci

- Fundamental Symmetries
- Nucleosynthesis
- Dense Matter and Neutron Stars
- Dark Matter
- Astrophysical Simulations



UCEIC

UC-wide Center Focused on the Physics of the Electron Ion Collider (EIC)

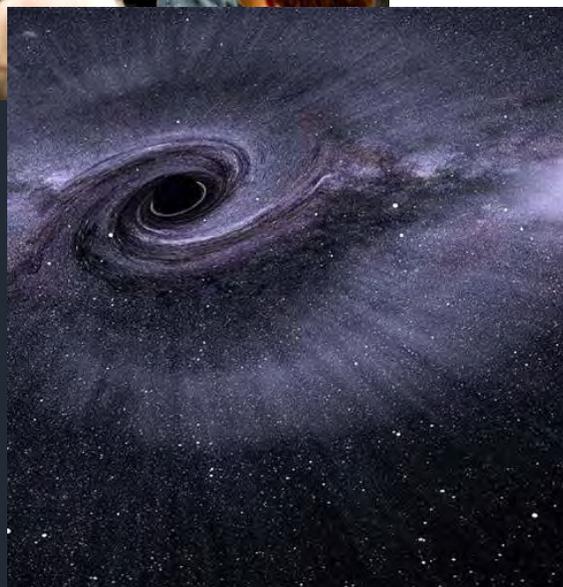
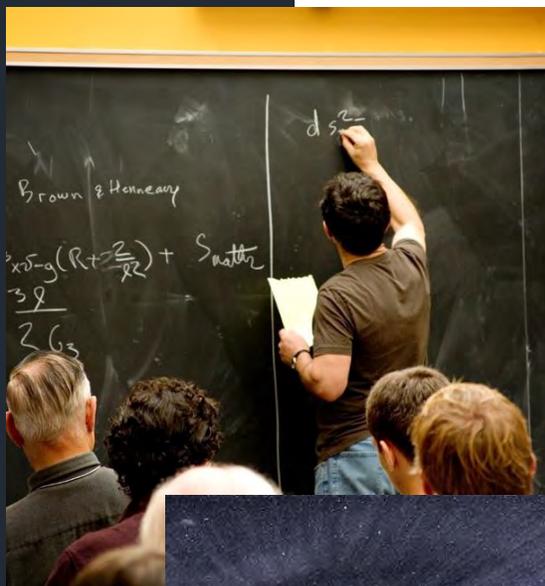


Science Mission

The EIC will be a particle accelerator that collides electrons with protons and nuclei to produce snapshots of those particles' internal structure—like a CT scanner for atoms.

Research Foci

- How does the mass of protons and neutrons arise from the nearly massless quarks and gluons?
- How does the spin of the nucleon arise?
- What are the emergent properties of dense systems of gluons?



BCTP

The Berkeley Center for Theoretical Physics

Science Mission

Furthering our understanding of matter, spacetime and the Universe, or more specifically quantum gravity, dark matter, neutrinos, the Higgs boson, and even the multiverse, ...

Research Foci

- Particle Theory
- Particle Cosmology
- String Theory and Quantum Gravity

Challenge Institute for Quantum Computation

CIQC

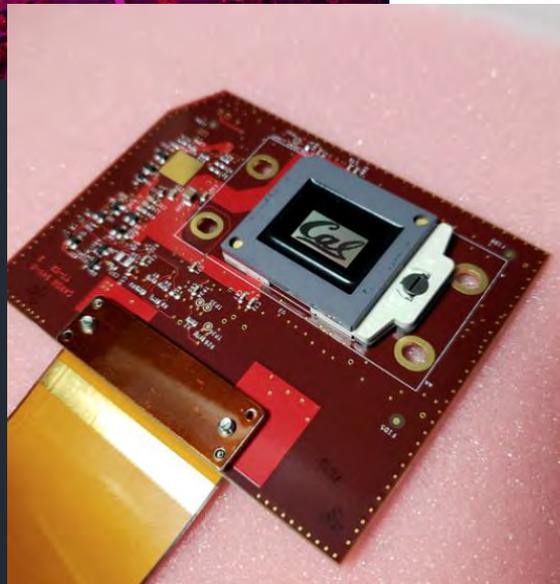
Fundamental challenges to the development of the quantum computer

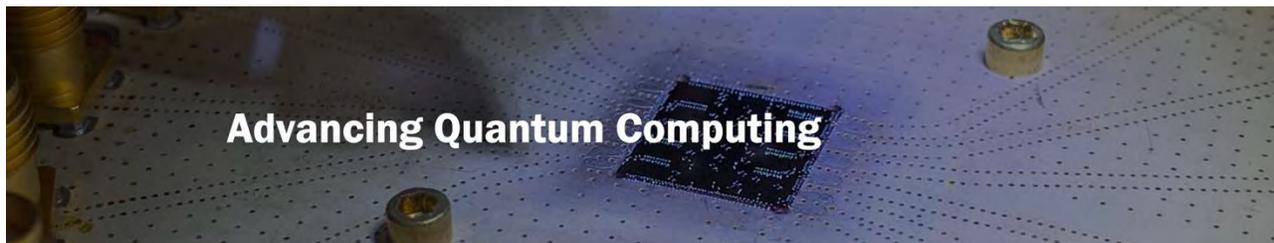
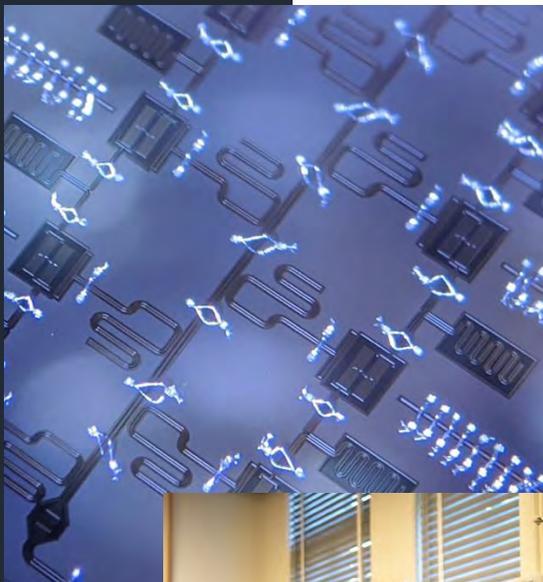
Science Mission

Bring together mathematicians, computer scientists, physicists, chemists and electrical engineers including graduate students and postdocs to address the fundamental challenges to the development of the quantum computer.

Research Foci

- Develop quantum algorithms and applications
- Develop the control of quantum computers
- Develop the hardware such as trapped atoms and ions





Advancing Quantum Computing

AQT

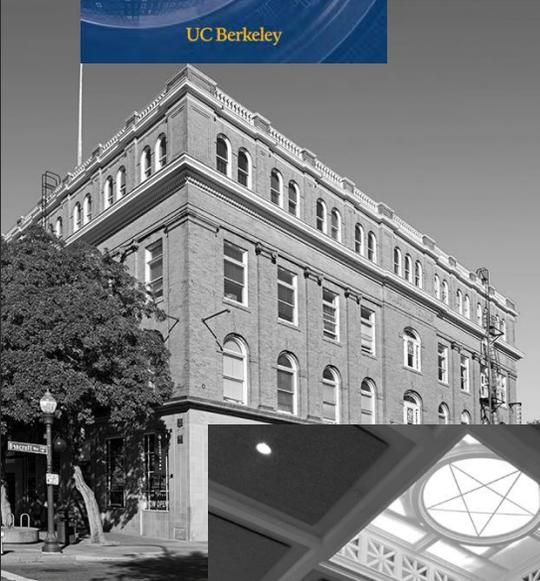
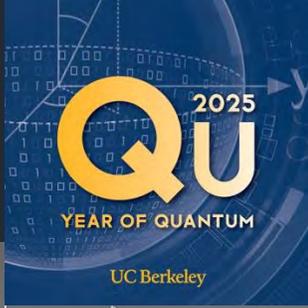
Superconducting Quantum Computers for Science

Science Mission

The Advanced Quantum Testbed (AQT) is an advanced superconducting platform for full-stack quantum computing, fostering, deep collaborations with users selected through a competitive process.

Research Foci

- Quantum Processor Development
- Quantum Control
- Quantum Computation & Simulation



Quantum Nexus

QUANTUM NEXUS

Home of Berkeley's Leadership in Quantum Fosters collaboration with industry, VC, national labs, government, and international partners

Features

- *7,000 sq ft of dedicated space*
- *Historic downtown Berkeley building, a block from campus*
- *Event room capacity: 150*
- *Open areas for impromptu discussions*

- *Private offices, hotel desk space, conference room, kitchen*
- *Easy access to public transportation, Berkeley Lab shuttles, cafes, etc.*



Every Student By Name And Need

BUILDING NEW BRIDGES

BPIE - The Berkeley Physics International Education Program partners with universities around the world to provide undergraduate international students an opportunity to study abroad at UC Berkeley for one semester or one year.

BETA Physics - The Berkeley Experience and Training in Advanced Physics Program is a certificate non-degree program which hosts visiting students from around the country and the world to provide an opportunity to study advanced graduate level physics at UC Berkeley for one or two semesters.

The Berkeley Pre-Core Transfer Summer Program is designed specifically to help prospective and newly admitted transfer students strengthen their skills to transition successfully into physics, astrophysics, and earth and planetary science (EPS) majors at UC Berkeley.

~~**REYES** - The Remote Experience for Young Engineers and Scientists (REYES) virtual STEM-H learning experience aims to increase science literacy, inspire and train the next generation of engineers and scientists. Also helps increase diversity in STEM fields by lowering barriers of entry for all, including students from underrepresented backgrounds.~~

Berkeley Connect in Physics: Opens up the extraordinary resources of the university to students on our campus. By joining, students will become part of a community of like-minded faculty, mentors, and students that will provide a supportive environment in which to exchange and discuss ideas and goals.

Pi2 - The Physics Innovators Initiative is our vision for modernizing, streamlining, and strengthening the path students follow as they pursue their undergraduate careers. The Pi2 Summer Scholars Program is designed to create funded summer research opportunities for undergraduates and rewards graduate students and postdocs for their mentorship.

The Paul L. Richards Physics Innovation Lab

- Up-to-date tools for automated processing and computer-aided design, 3D printing, laser cutters, soldering circuitry stations
- Brand new to the Lab: an optical table has now been installed
- Offers experience for undergrad students with no research or experimental background
- The official lab opening event is October 10



Nextgen
Teaching and
Research
Facilities





2025 Expanded Physics Undergraduate Research Fair



- Division-Wide for Math and Physical Sciences
- New Location: Pauley Ballroom
- Co-sponsored by MPS Scholars
- In collaboration with Astro/Math/EPS/MPS Scholars and Pi2

Our Community

Berkeley
Physics

Creating A Community Of Life-Long Learners



Faculty



Administrators



Scholars



Students

1943

Adolph C. and Mary Sprague Miller entered into a trust with the Board of Regents to establish an institute "dedicated to the encouragement of creative thought and conduct of research and investigation in the field of pure science."

1953

Adolph Miller passes away.

1955

The Statement Establishing the Institute for Basic Research in Science was submitted to the Regents and was subsequently approved.

1957

Mary Sprague Miller passes away. The names of the donors became public and the Institute was designated: "The Adolph C. and Mary Sprague Miller Institute for Basic Research in Science."

Six professors were named the first Miller Research Professors:

James Carson, Jr., Chemistry

Jack Evernden, Geology & Geophysics

Daniel Mazia, Zoology

Jerzy Neyman, Statistics

William Nierenberg, Physics

Roger Stanier, Bacteriology

1958

1st Visiting Miller Professor is named:

Leopold Schmetterer, Statistics

1960

1st Miller Fellows are named:

John Fletcher, Physics

James Kinsey, Chemistry

Carl Sagan, Astronomy

Dana Scott, Mathematics

Charles Shuster, Bacteriology

Paul Whitfeld, Biochemistry

1997

Miller Institute establishes an annual Interdisciplinary Symposium

2005

The Miller Institute celebrates 50 years of science and establishes development campaign to provide for continued support of its programs.



The Miller Institute is "dedicated to the encouragement of creative thought and the conduct of research and investigation in the field of pure science and investigation in the field of applied science in so far as such research and investigation are deemed by the Advisory Board to offer a promising approach to fundamental problems."



Miller Professors

Professor Hernan G. Garcia
Molecular & Cellular Biology

Professor Na Ji
Physics and Molecular & Cell Biology

Visiting Miller Professors

Professor Marina Filip
University of Oxford

Professor Vidya Madhavan
University of Illinois Urbana-Champaign

Professor Nicola Spaldin
ETH Zurich

Miller Fellows

Dr. Yuxiao Jiang
Princeton University

Faculty Awards



Stuart Bale
Raúl Briceño

Michael Crommie
Steven Kahn
Kam-Biu Luk

Raffaella Margutti

Hitoshi Murayama
Gabriel Orebi Gann
Bernard Sadoulet

Dan Stamper-Kurn

Arctowski Medal

Sloan Fellow

Presidential Early Career Awards for
Scientists and Engineers

National Academy of Sciences

National Academy of Sciences

American Association for the Advancement
of Science

Presidential Early Career Awards for
Scientists and Engineers

2025 Particle Physics Medal

Heising-Simons Faculty Fellowship

American Association for the Advancement
of Science

Senior BEC Award

Frances Hellman

Berkeley Citation Award

Frances Hellman has left a deep and enduring mark at UC Berkeley and the world with her dedication to education, leadership, and public service.



The Berkeley Citation is awarded to a variety of distinguished individuals or organizations, academic or nonacademic, whose contributions to UC Berkeley go beyond the call of duty and whose achievements exceed the standards of excellence in their fields.



**“Creative work is a gift to the world and every being in it.
Don't cheat us of your contribution. Give us what you've got.”
– Steven Pressfield**



Brief Bio

Sheela Jhaveri joined Berkeley Physics as Financial Analyst in October 2024. Prior to Physics she was a Research Administrator for 6 years at California Social Work Education Center at Berkeley Social Welfare. She oversaw post-award administration of CalSWEC's contracts. A UC Berkeley veteran of many years, she has also worked at various nonprofits in the Bay Area.



Strategic Area

I focus on providing fiscal support to the operations of the department: student services, faculty, and staff. I hope to cultivate relationships and community while providing timely information. Learning and expanding my knowledge are intrinsic to how I approach my work.



“Be the change that you wish to see in the world.”
– Mahatma Gandhi



Brief Bio

Kate Freyermuth joined UC Berkeley in January of 2025. Prior to joining Cal, she worked as a program coordinator at the University of Arizona, her alma mater. Kate enjoys working with students & faculty, and helping students flourish during their time at the University. In her free time, she likes to travel with her fiancé and spend time with friends and family.



Strategic Area

Equity and Inclusion: Working in student services, I feel that I have the opportunity to promote equity and inclusion in everything I do. I support students by making sure they have access to resources & opportunities, and I strive to contribute to an environment that fosters a sense of belonging for all.



“Mi deber es vivir, morir, vivir”
– Pablo Neruda



Brief Bio

Roberto has been part of the physics community since 1996 having been a student (and former SPS President) to now being able to supply fun Physics toys to lectures and outreach programs. You're equally likely to find him covered in dirt from tending to his pepper garden or from the rugby pitch. Roberto has been promoted to team lead.



Strategic Area

Like many students, my foremost experiences at Cal center around the lab curriculum. I'm very much looking forward to being able to continue evolving and expanding that experience to students for the entirety of their undergraduate career. I'm excited to play a role in ensuring that all our students have an opportunity to be successful by supporting modern pedagogy and facilitating access to the wealth of resources and tools that have been developed in recent years.



**“Millions saw the apple fall but Newton asked why.”
– Bernard Baruch**



Brief Bio

Stephen comes to us from Yale University, where he has been the Director of Instructional Labs since 2001. He holds a Ph.D. in Condensed Matter Physics from UC Davis and brings a wealth of experience to our department.

Originally from Connecticut, Stephen has strong ties to the Bay Area and is excited to return. His interests include crosswords, trout fishing, disc golf, and, of course, physics.

Strategic Area

Stephen will be leading the instructional services team and considering ways to update labs, demos and experiments using modern technology and tools..



"If you're always trying to be normal, you will never know how amazing you can be."

- Maya Angelou



Brief Bio

Cayla Gordon is new to campus and arrives at Physics with 9 years of experience as an HR generalist and payroll specialist. She grew up right here in Berkeley and will be sitting in our main office. Cayla enjoys traveling and spending time with friends and family and is excited to be joining UC Berkeley.



Strategic Area

Cayla plans to focus on supporting our faculty searches and faculty award nomination process over the next year.



Berkeley People & Culture

- **Collaboration** - Enhances individual work by soliciting contributions from others and enhances others' work by contributing to their success to more effectively meet unit goals.
- **Goal Accomplishment** - Achieves individual goals that contribute to unit priorities.
- **Inclusion & Belonging** - Demonstrates respect for people and their differences, and understands the benefits of a diverse workforce, is trusted and respected by others, includes and welcomes others, and works to understand the perspective of others.
- **Innovation** - Uses knowledge, skills, and professional experience to seek efficiencies and improve work outcomes.
- **Job Mastery** - Demonstrates the knowledge, skills, and abilities that result in high performance and contributions within the scope of the employee's job description.

STAFF RECOGNITION

SPOT Awards

Claire Legas
Sheela Jhaveri
Elizabeth Nakahama-Ryan
Harneet Gill
Mavis Njoo Lau
Kathleen A Cooney
Jon Deasy
Ariana Castro
Cathy Nguyen
Stephen Pride Raffel
Marjani Jones

Tradition Of Excellence

Where Students Are Achievers

Graduate Student Incoming Class

Julius Adolff
Athira Arayath
Sanya Arora
Asa Baker
Jiuru Chen
Aaron Chizhik
Giulio Alvise Dainelli
Alain Fauquex
Drew Gibson
Victor Gomez
Mireya Gonzales-Rivera
Gary Han
Xujia He
Joshua Ho
Andrew Householder
Denali Jah
Dobrica Jovanovic
Vytis Krupovnickas
Hana Lampson
Dylan Lane
Matthew Lu
Lia Lubit

Dawid Maskalaniec
Alyssa Matthews
Ryan Morokutti
Demos Negash
Riley Nold
Andrea Ola Mejicanos
Henry Pentz
Samyuktha Ramanan
Esha Rao
Devayani Ravuri
Rebekah Sebok
Luka Sever-Walter
Lela Spira-Savett
Vishnu Srinivasan
Reef Sweeney
Corbin Tinnon
Charles Veihmeyer
Celeste Dominique Virador
Zhihan Wei
Catherine Welch
Owen Wetherbee

Meet the new graduate class

- 1457 Applicants; 44 acceptances
- 6 Major Fields of Physics
- Applicants from Across the Globe

		Applied	Accepted
Research Type	Experiment	781	33
	Theory	676	11
Concentration	AMO	214	8
	Astrophysics	153	6
	Biophysics	51	2
	CM	442	9
	HEP	364	17
	Nuclear	54	2



A Community Of Researchers

Incoming Postdoctoral Scholars

Maryrose Barrios
Luisa Bergmann
Yashwanth Bezawada
Laisi Chen
Eric Cooper
Zhihuan Dong
Richard Feder-Staehle
Cara Giovanetti
Yuxun Guo
Ish Gupta

Nicholas Huang
Dongwon Kim
Mia Kumamoto
Vincent Lee
Jeevan Chandra
Namburi
Makinde Ogunnaike
Felipe Ortega Gama
Ian Padilla Gay
Grace Pan



A Community Of Researchers

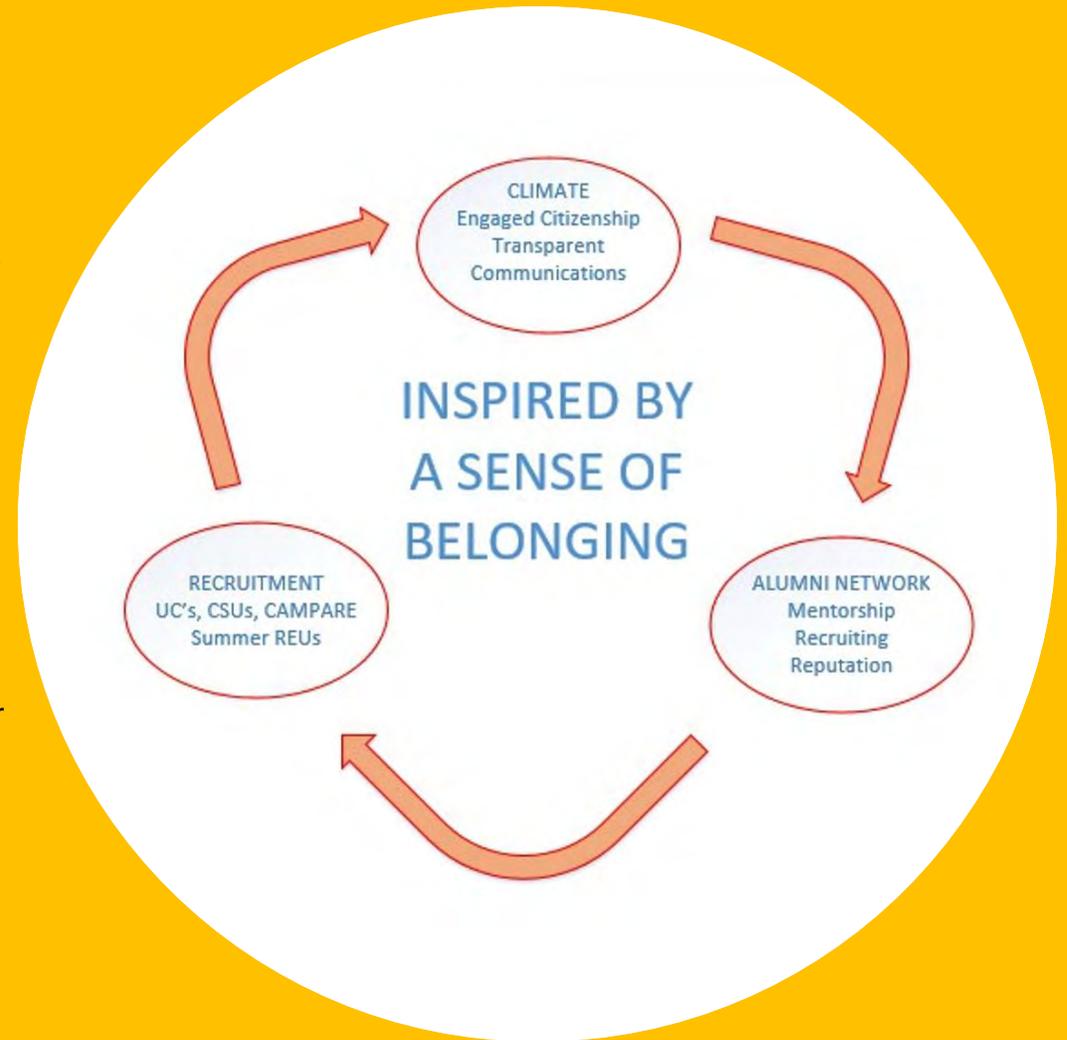
Incoming Postdoctoral Scholars

Shuting Peng
Jayden Plumb
Michael Randall
Alina Sabyr
Hiromitsu Sawaoka
Divya Singh
Michael Sonner
Ke Sun
Kento Taniguchi
Fernando Torales Acosta

Tianshu Wang
Shunyu Yao
Baiyi Yu
Kevin Zhou Baiyi, Yu
Gao, Qiang
Mayer, Daniel
Olumakindee, Ogunnaike
Pan, Grace
Richardson, Thomas
Yao, Shunyu

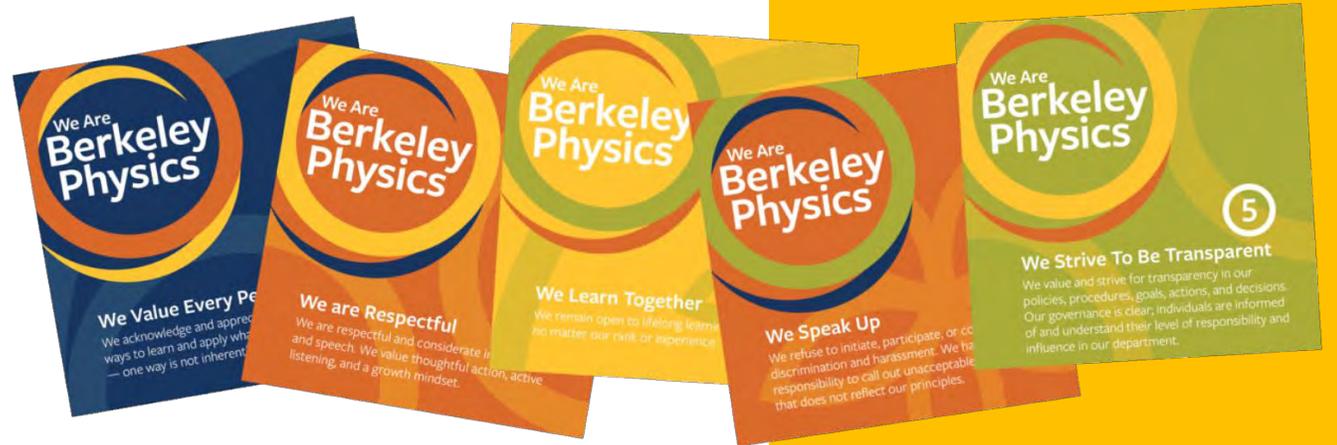
Building A Welcoming & Vibrant Community

- Department-wide discussion will review strategic plan
- Faculty committee plans back-to-school reception in September
- Increased training and support to undergraduate leaders
- Faculty retreat and staff committee events will address climate



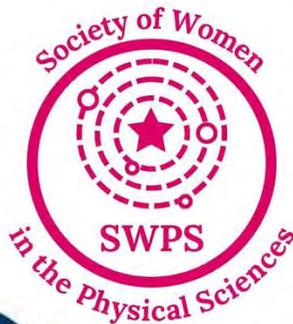
Physics Department Community Principles Handbook

A process was started during the Physics First Friday workshop in November 2020 to create a set of unique principles for the Physics Department, a set of agreements rooted in our own community values, beliefs and interests.



STUDENT LIFE

Physics Student Organizations



Berkeley Connect

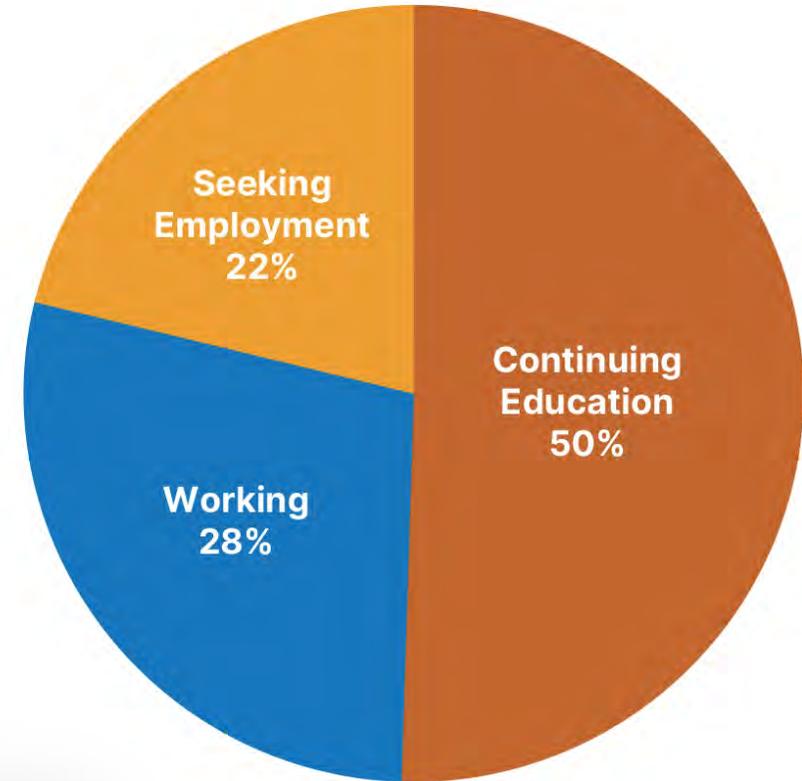


Student Organization activities include: mentoring, social events, faculty/student lunches, community outreach, BBQs, study halls, guest speakers, undergraduate student seminars, physics tournaments, workshops, research lecture series, poster sessions, research support,...

A Vibrant Community

AFTER GRADUATION

Our Undergraduate Class



'24-25 AY:
117
Graduates

- 369 Physics Majors
- ~400 Intended Majors
- 192 Transfer Students

In Memoriam



IN MEMORIAM

Remembering Mary K Gaillard

Professor Emeritus Mary K Gaillard, a pioneering theoretical physicist and esteemed educator, died on the morning of May 23, 2025. She was 86.

Professor Gaillard became the first woman to join the Physics faculty at the University of California, Berkeley and was simultaneously appointed a senior staff member at LBNL later serving as head of its Particle Theory Group. Her career as a theoretical physicist spanned the period from the inception, in the late 1960s and early 1970s, of what is now known as the Standard Model of particle physics and its experimental confirmation, culminating with the discovery of the Higgs particle in 2012.



IN MEMORIAM

Remembering Joel Fajans

Professor Joel Fajans, distinguished plasma physicist, celebrated researcher, and devoted mentor at the University of California, Berkeley, passed away on November 17 at the age of 66, after a battle with cancer. Joel was internationally renowned for his pioneering contributions to nonneutral plasma physics and antimatter research. He was locally famous for his challenging but rewarding Physics 111A Instrumentation Laboratory course, as well as for his expertise in the classical mechanics of bicycles.



IN MEMORIAM

Remembering Robert Dynes

Robert C. Dynes, Professor of Physics and former President of the University of California, died on June 30, 2025, at the age of 82. A towering figure in science and education, Dynes was widely respected for both his scientific research and his visionary academic leadership.

Dynes was an experimental condensed matter physicist who made seminal contributions to the study of electronic transport properties of a wide range of materials, most notably superconductors. His research interests ranged from fundamental physics to device applications of superconducting tunnel junctions.



IN MEMORIAM

Remembering William Frazer

William R. Frazer, Senior Vice President, Emeritus of the University of California system and Professor of Physics Emeritus UC Berkeley, died on February 2, 2025.

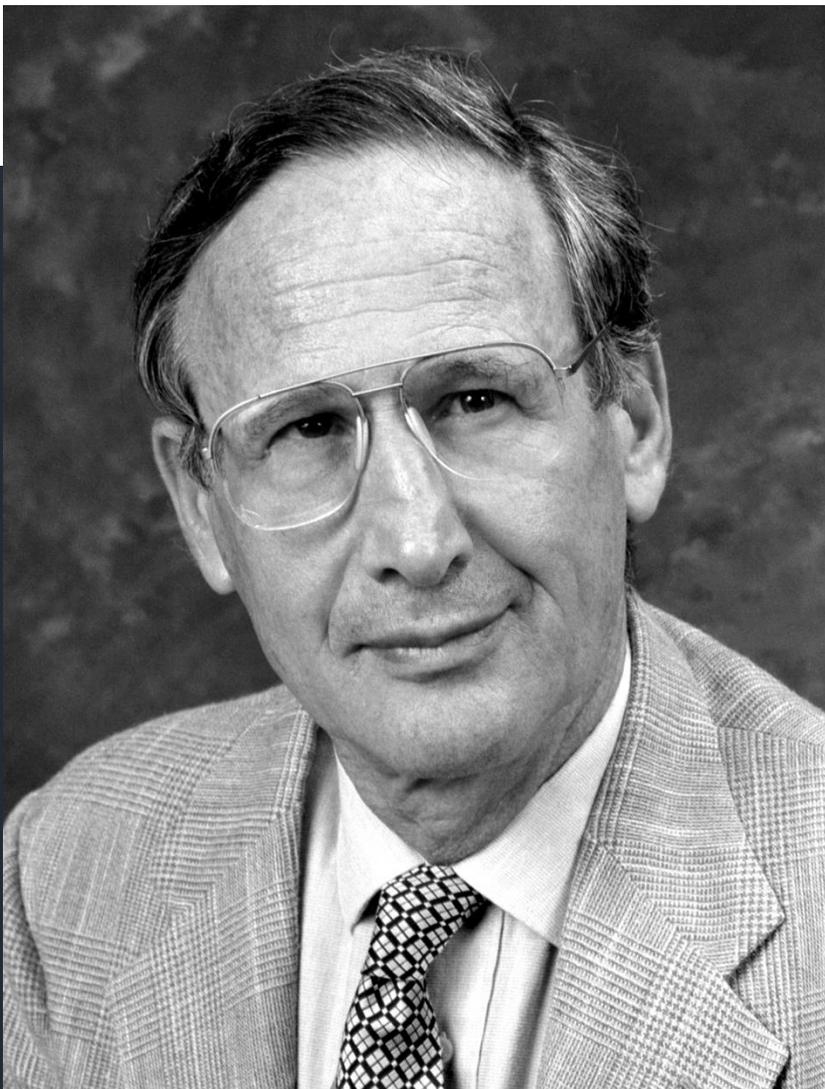
As Provost of the University of California's nine-campus system from 1981 to 1991, Bill was responsible for oversight of the scientific programs of the Los Alamos, Livermore, and Berkeley National Laboratories. His legacy includes two institutions he shepherded into being: the twin ten-meter Keck telescopes atop Mauna Kea on the island of Hawaii; and the American University of Armenia in Yerevan, Armenia, founded in 1991.



IN MEMORIAM

Remembering Richard Packard

Richard Packard, Professor of Physics at UC Berkeley, passed away in November 2024 at age 81 after a brief illness. A leader in low-temperature physics, he confirmed Richard Feynman's prediction of quantized vortices in superfluid helium and developed pioneering methods to image and study their dynamics. He later made landmark contributions in superfluid helium-3, including the first observation of Josephson oscillations in superfluids, discoveries that opened new avenues for quantum sensing. His research profoundly shaped the field of quantum fluids and inspired generations of physicists.



IN MEMORIAM

Remembering Herbert Steiner

Herbert Steiner, Professor Emeritus of Physics at UC Berkeley, passed away on January 15, 2025, at age 97. An experimental particle physicist, he contributed to the discovery of the antiproton, pivotal studies of strange hadrons supporting the quark model, and the development of multiwire proportional chambers. He advanced spin physics at Fermilab, precision electroweak measurements at SLAC, and calorimetry at HERA. In later years, he played key roles in KamLAND and Daya Bay, where neutrino oscillations and mixing were definitively established.

Looking forward to 2025-26

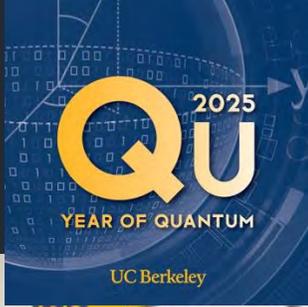


2025 EMILIO SEGRE LECTURE

The 2025 Segrè Lecture with Fabiola Gianotti: The Higgs boson and our life

**Join us on
October 20 at
6:00 pm at the
International
House!**

Dr. Fabiola Gianotti is an experimental particle physicist, best known for her leadership in the discovery of the Higgs boson at CERN and for being the first woman to serve as Director-General of the European Organization for Nuclear Research (CERN), a position she holds to this day for a second term.



Quantum California

UC Berkeley Introduces “Vision for Quantum” in Sacramento: Highlighting UC Berkeley’s important role in preparing our diverse student body for future professional opportunities, while ensuring that California remains an epicenter of computer innovation.



Leinweber Institute for Theoretical Physics



LITP

The Leinweber Institute for Theoretical Physics at UC Berkeley

It will include new postdoctoral Leinweber Physics Fellows, funding for grad students, and convenings with other institutes (Stanford, UChicago, CalTech, MIT, IAS, UMichigan etc)

Science Mission

Foster independent research while also creating a network for cross-institutional collaboration among faculty, postdoctoral fellows, and students.

Additional Research Foci

- Fueling our understanding of how the world works
- Opening doors to groundbreaking discoveries
- New research will include condensed matter theory

The R&D Shops (since 1891)

A valuable resource for Physics researchers and experimentalists located in the South Hall basement

Capabilities & Equipment

- CNC machines: vertical mill, 5-axis machine, wire EDM
- Supports complex and intricate fabrication

Services Offered

- Machining, welding, soldering, cutting
- Extracting broken/stripped bolts
- Modifying existing parts

Support

- Skilled, helpful mechanics are available to assist



NEW FOR 2025

Academic Program Review Outcome Summit

The outcome of our recent Academic Program Review has been delivered and it is full of recommendations and action items that the department will be considering. Join your colleagues at our daylong APR Outcome Summit that will take place early in the Spring semester. Stay tuned for ways to participate. The summit will be facilitated by Britt Andreatta, former associate dean of students at UCSB. More news about this important event will be sent out soon.



Our Leadership Team



Dan McKinsey

Faculty Affairs, Vice Chair



Yury Kolomensky

Instruction, Co-Vice Chair



Heather Gray

Instruction, Co-Vice Chair



Shimon Kolkowitz

Faculty Appointments,
Vice Chair

Our Head Advisors



Gabriel Orebi-Gann
Head Undergrad
Advisor



Dan Kasen
Head Grad
Advisor



Holger Mueller
Head GSI
Advisor

Thank you!

Join us for refreshments
outside the Campanile