



2023 Physics Department  
**Welcome & First Tea**

Berkeley  
Physics

# 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.

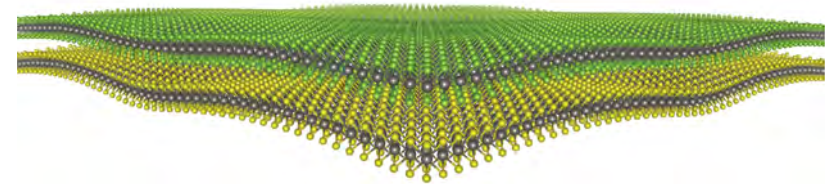
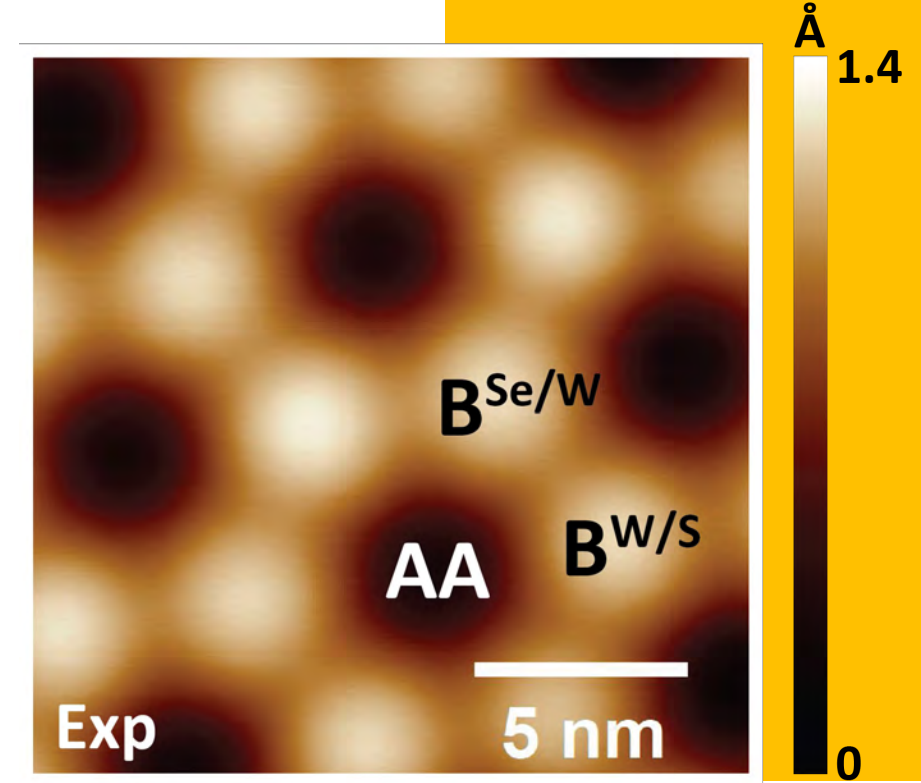




QUANTUM MATERIALS

# 2D Condensed Matter Physics

- Discovery of tunable Mott insulator, superconductivity, orbital magnetism, and Chern insulator in a single trilayer graphene/hBN moire superlattice.
- Discovery of moire excitons, Mott insulators, and generalized Wigner crystals in  $WS_2 / WSe_3$  moire superlattices.



QUANTUM PHYSICS

# Quantum Computers and Simulators

Researchers at IBM Quantum in New York and their collaborators at the University of California, Berkeley, and Lawrence Berkeley National Laboratory report in the journal *Nature* that they pitted a 127-qubit quantum computer against a state-of-the-art supercomputer and, for at least one type of calculation, the quantum computer bested the supercomputer.

RESEARCH, TECHNOLOGY & ENGINEERING

## New technique in error-prone quantum computing makes classical computers sweat

By Robert Sanders, Media relations | JUNE 14, 2023

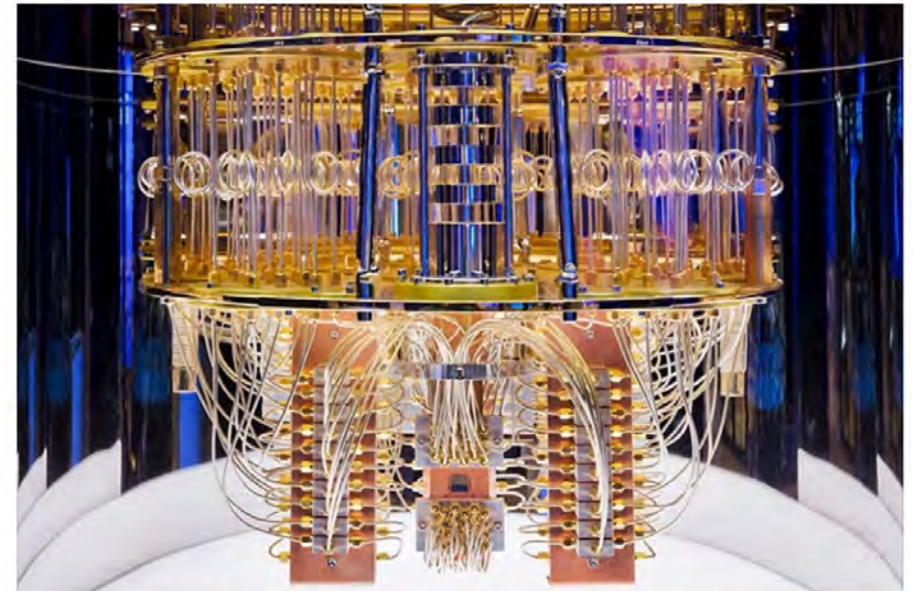
[Tweet](#)

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[Reddit](#)

[Email](#)

[Print](#)



IBM's quantum computer is housed inside a cryogenic container (center) surrounded by a tangle of cables used to control and read out its qubits. (Photo credit: IBM)

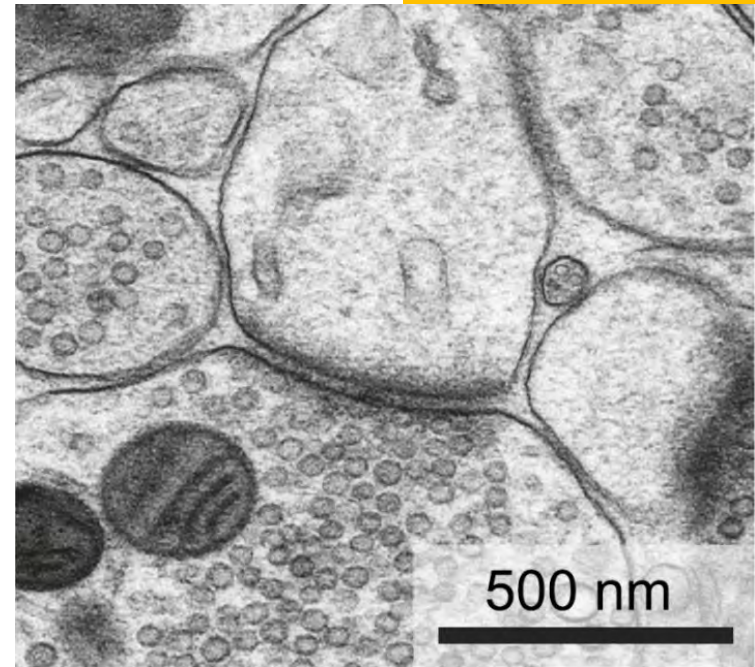
BIOPHYSICS

# Brain: From Data to Model

- We can measure the neural correlates (e.g., activity of neurons) of mental activity. **Human Brain Project:** A full, digital, 3D model at the resolution of the individual cell tracing cellular connections
- Physics, the most quantitatively accurate descriptions of natural phenomena, and physicists are needed to understand ourselves.

Brain

3 lb.  
1000 cm<sup>3</sup>

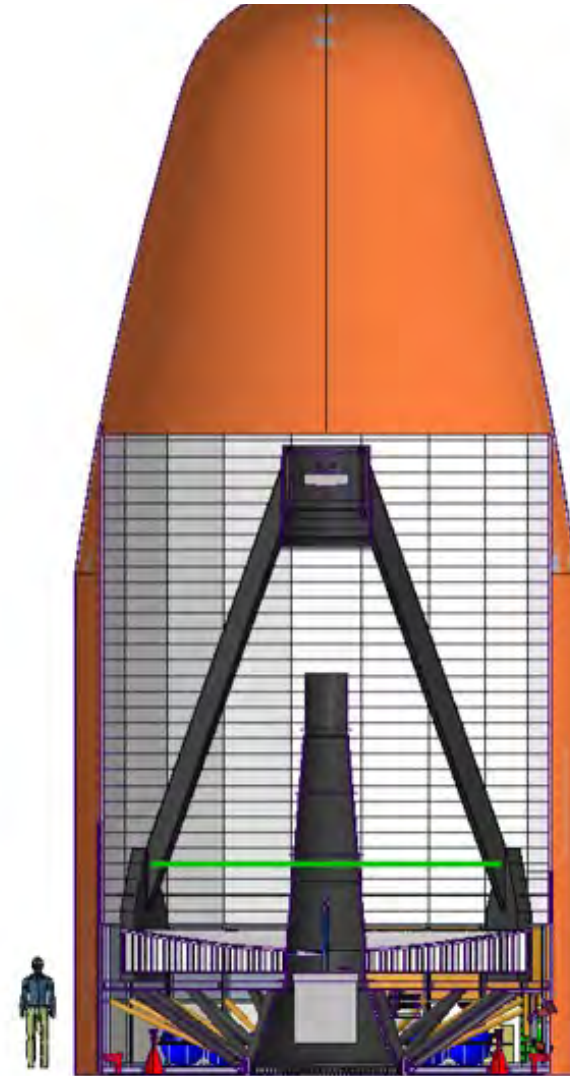


Synapse  $10^{15}$  (1 quadrillion)

SPACE SCIENCE

# SSL: New Capabilities and Missions

Berkeley is working with private funding to study – and likely build and launch – a space telescope taking advantage of “new space” capabilities. The goal is to demonstrate the possibility of building a series of inexpensive (MidEx cost) space sciences missions, each learning from the previous, and each focusing on different science goals.

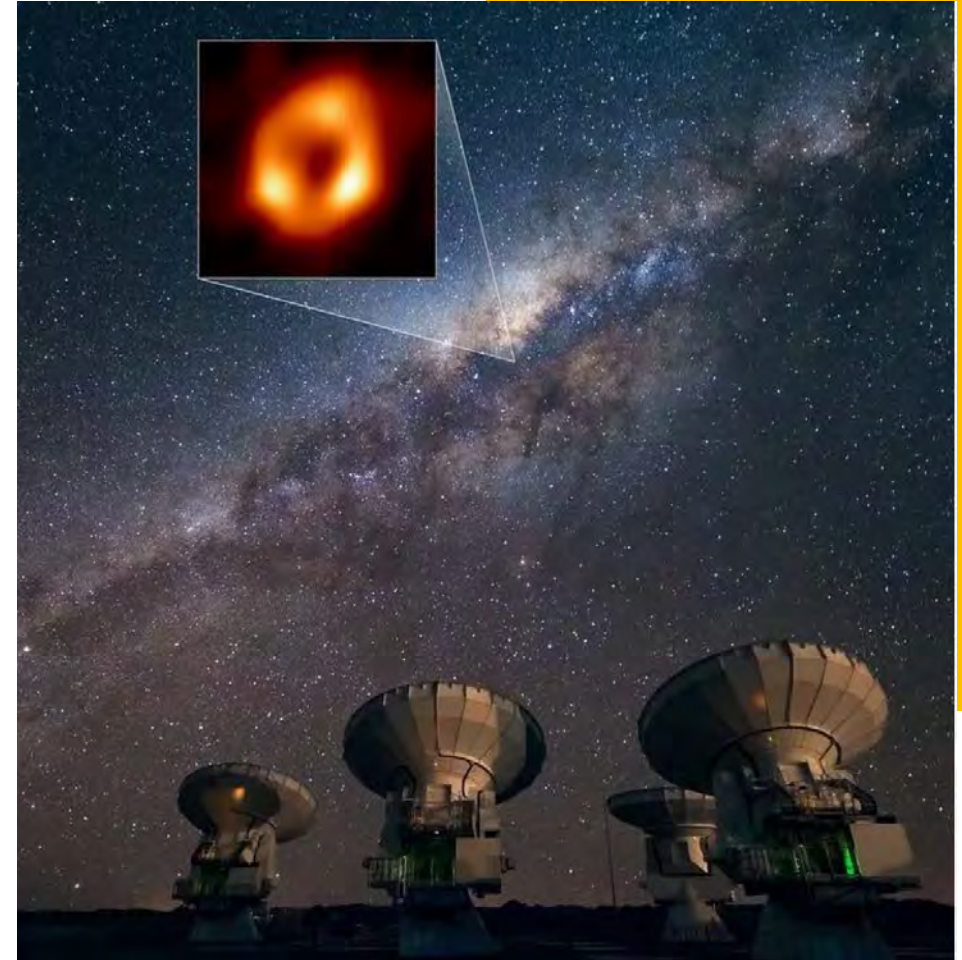




QUANTUM GRAVITY & QUANTUM INFORMATION

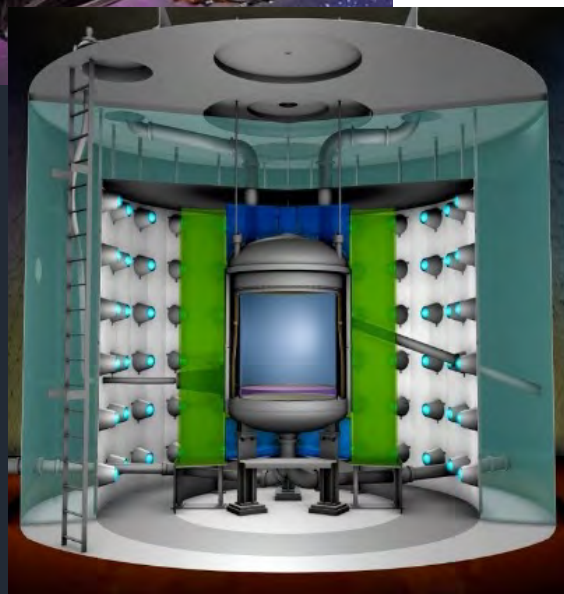
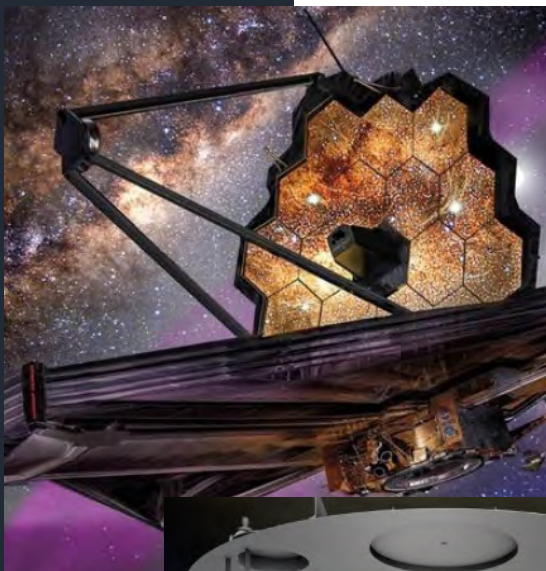
# Gravity in the Quantum Information Age

- Information theory gives us a common language to approach the theories of gravity and quantum mechanics
- New quantum tools give us table-top methods to explore fundamentally new ideas in the physics of the universe: scrambling, quantum null energy condition, ...





# Our Centers



Dark Matter Annihilation can turn on the lights  
inside neutrino detectors →

N3AS

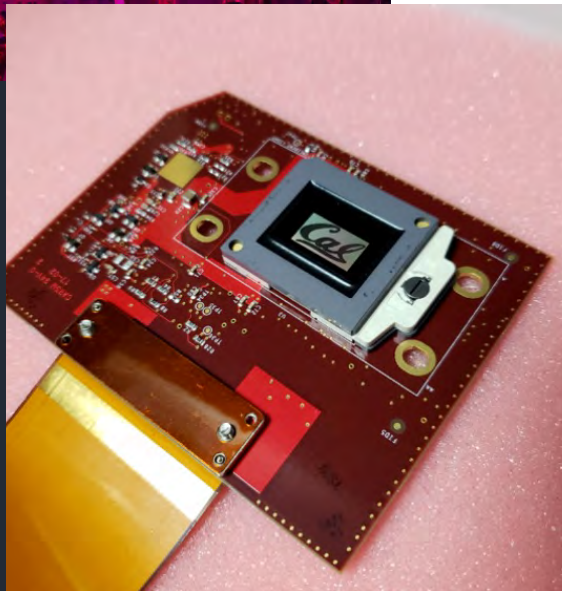
# Network for Neutrinos, Nuclear Astrophysics and Symmetries

## 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



CIQC

# Fundamental challenges to the development of the quantum computer

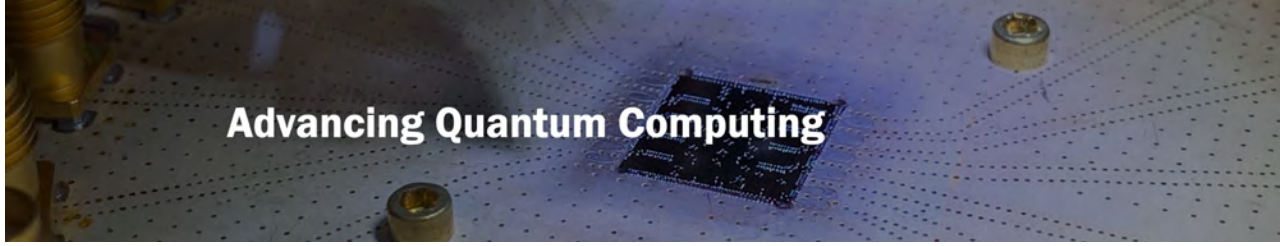
## Science Mission

Our primary research theme is quantum computing, along with connected topics in quantum simulation, sensing, and technology development, and quantum-inspired classical computing.

## Research Foci

- Quantum Algorithms
- Verifiable Quantum Advantage
- Scaling Quantum Systems





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





BCTP

# The most pressing scientific questions about the Universe.

## Science Mission

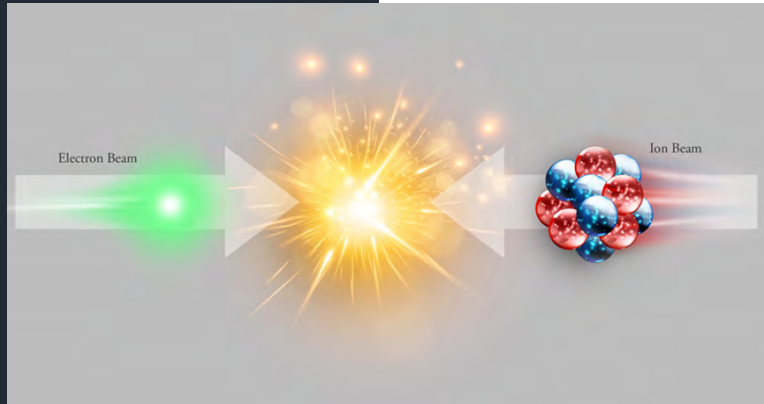
Furthering our understanding of matter, spacetime and the Universe, or more specifically quantum gravity, dark matter, neutrinos, the Higgs boson, and even the multiverse, ...

## Research Foci

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



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?



**BPIE** - The Berkeley Physics International Education (BPIE) 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 (BETA Physics) Program is a certificate non-degree program which hosts visiting students from around the country and the world to provide them with 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. We also help increase diversity in STEM fields by lowering barriers of entry for all, including students from underrepresented backgrounds. To date, more than 11,000 learners in 135 countries have registered for REYES.

**Berkeley Connect in Physics:** The Berkeley Connect program opens up the extraordinary resources of the university to you: the extraordinary 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.

BUILDING NEW BRIDGES

# Every Student By Name And Need



# Our Community







RAÚL BRICEÑO

**“My research largely focuses on understanding the emergence of low-energy nuclear physics directly from the fundamental theory of quark and gluons, namely quantum chromodynamics (QCD).”**

---

A Wilson Award winner whose work has expanded different subfields of nuclear and particle physics, including QCD spectroscopy, lattice QCD, scattering theory, hadron structure, nuclear structure, and quantum computing.



SHIMON KOLKOWITZ

**“Using AMO and precision measurement techniques we can perform new tests of fundamental physics on a table-top, with real-world applications in fields such as navigation and medicine.”**

---

A world-leading experimentalist having developed advanced methods where the frequencies of two highly precise atomic clocks are compared to one part in  $10^{20}$ , the highest precision of any measurement to date.



## 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.

celebrating 50 years



*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."*



## Visiting Professors

Philip Kim, Harvard University

Vahid Sandoghdar, Max Planck Institute for the Science of Light

Michael Turner, Rauner Distinguished Service Professor, Kavli Institute for Cosmological Physics

Jure Zupan, University of Cincinnati

## Fellows

Augusto Ghiotto, Columbia University

Ethan Lake, MIT

Calvin Leung, MIT

Xueyue (Sherry) Zhang, Caltech





# Faculty Awards

- **Ehud Altman** Simons Foundation Investigator
- **Stuart Bale** American Geophysical Union Fellowship
- **Mike Crommie** Department of Defense Vannevar Bush Faculty Fellow
- **Hernan Garcia** Chan-Zuckerberg Biohub Investigator  
Elizabeth D. Hay New Investigator
- **Alessandra Lanzara** UC Berkeley Bakar Fellow Prize
- **Dunghai Lee** American Academy of Arts and Sciences Fellow
- **Chung-Pei Ma** American Astronomical Society Fellow
- **Eric Ma** Amazon Physical Science Fellowship
- **Geoff Pennington** DOE Early Career Award
- **Matt Pyle** DOE Early Career Award
- **Ben Safdi** Alfred P. Sloan Research Fellowship
- **Dan Stamper-Kurn** American Association for the Advancement of Science Fellow
- **Michael Zaletel** L&S Faculty Award  
DOE Early Career Award



MARJANI JONES

**“I hope to contribute to the mission, vision, and goals of the Department by supporting student success and satisfaction, and by partnering with other academic staff/departments.”**

---

Marjani previously worked at the University of Illinois Chicago (UIC) as an academic advisor for the occupational therapy department. At UIC, she was a primary resource for prospective and enrolled students. She was chair of the Applied Health Sciences staff council committee.





ALEX PERRY

**“My dad is a mathematician and a physicist, so an appreciation for science runs deep in my family! My goal is to promote the continuing growth of our programs and create a fun and memorable experience for all of our visiting Physics students.”**

---

A consultant and strategist with ample experience in marketing, advertising, website creation, digital storytelling and campaigns, content curation and social media strategy. Alex is from the Bay Area and a UC Santa Cruz graduate.



# 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

Anna Hilke  
Laura Fantone  
Elizabeth Nakahama-Ryan  
Joelle Miles  
Kathleen Cooney  
Carlos Bustamante  
Isabella Mariano  
Simon Leaver-Appelman  
Mari Royer  
Beth McCleary  
Anthony Vitan

Tradition Of Excellence

# Where Students Are Achievers

## Graduate Student Incoming Class



Abdalla, Ahmed Ibrahim  
Adhidewata, Jyesta Mahayu  
Afifa, Umaima  
Alcott, Samuel David  
Alsallom, Faisal  
Bariuan, Luis Gabriel Carlos  
Bartlett, Alexa  
Bear, Soren Jorgensen  
Blackburn, Albany Eve  
Carrel, Dashiell  
Castro, Juan Antonio  
Cui, Jeffery  
D'Ambrosia, Samuel Hewitt (Sam)  
David, Marco  
Derrico (Abby), Abigail  
Devereaux, Kyle  
Duim, Rowan  
Fahs, Adam  
Fultineer, Aaron Timothy  
Gong, Xiaoxun  
Hong, Vi Thanh

Hwang, Minyoung Chris (Tucker)  
Jahanbani, Shahin  
Lee (Tsaichen Lee), Tsai-Chen  
Lim, Hyungbin  
Louie, Garrett  
Naumov, Kirill  
Pan, Shuaiwei  
Pope, Isaac Matteo  
Raman, Kailash Anirudh  
Sewalls, Harper Clay  
Shiferaw, Abel Misikir  
Shtov, Alexander Sergeevich  
Singh, Roshni  
Suryanarayanan, Aswath  
Tabor, Elisa  
Turnbull, Joey  
Wang, Yi-Cheng  
Xiang, Tai  
Yousuf, Fatima  
Zhu, Tong

# Meet the new graduate class

- 1195 Applicants; 42 acceptances
- 6 Major Fields of Physics
- Applicants from Across the Globe

		Applied	Accepted
Research Type	Experiment	630	24
	Theory	560	18
Concentration	AMO	175	7
	Astrophysics	131	4
	Biophysics	31	1
	CM	370	12
	HEP	318	12
	Nuclear	44	2





# A Community Of Researchers

## Incoming Postdoctoral Scholars

Andrews, Bartholomew  
Bhattacharyya, Prabudhya  
Bloch, Itai  
Bonney, Quentin  
Chang, Yen-Yung  
Chen, Lebing  
Cheong, Patrick Chi Kit  
Colin-Ellerin, Sean J  
Feggeler, Thomas  
Freschi, Marco  
Froustey, Julien  
Ge, Zhehao  
Hashim, Akel  
Hodgkinson, Danielle Louise  
Jackura, Andrew  
Ji, Lingyuan  
Karamanis, Minas  
Lin, Yu-Ping  
Liu, Chuanhong  
Lopez-Collado, Elena de la Hoz

Luo, Hailan  
Mitscherling, Johannes  
Mukhopadhyay, Payel  
Myles, Justin  
Paterson, Jessy  
Pritchard Cairns, Luke  
Ray, Anupam  
Saez, Maria Manuela  
Salazar Wong, Farid  
Schneider, Lucas  
Wang, Ke  
Wu, Qiming  
Zhang, Fang  
Zhang, Jessie T

# Physics Student Organizations

Student Org 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*

Berkeley Connect



$\lambda$  IGenSpectrum

 THE COMPASS PROJECT



<https://physics.berkeley.edu/student-life/student-organizations-and-mentoring>



# PHILIP W. PHILLIPS

PROFESSOR OF PHYSICS AT THE UNIVERSITY OF ILLINOIS

Philip W. Phillips is a theoretical condensed matter physicist who works on disordered, strongly correlated electron systems, and problems on the border with high-energy physics. He received his

PhD in 1982 from the University of

Washington and then was a Miller Fellow at UC Berkeley. After a faculty position at MIT from 1984-1993, he joined the physics faculty at University of Illinois at Urbana-Champaign.

He has received numerous awards for this work including the Edward A. Bouchet Award from the APS, Fellowship in the APS, a Guggenheim and membership in the American Academy of Arts and Sciences in 2020.



# WILLIE HOBBS MOORE

FIRST BLACK WOMAN TO EARN A PHD IN PHYSICS

A FIRST GENERATION STUDENT, DR. MOORE STUDIED PHYSICS AND ELECTRICAL ENGINEERING AT THE UNIVERSITY OF MICHIGAN, WHERE SHE EARNED HER PHD IN 1972. HER THESIS ANALYZED THE STRUCTURE OF PVC PLASTICS. AS A RESEARCHER AT THE UNIVERSITY OF MICHIGAN, SHE STUDIED PROTEIN SPECTROSCOPY. IN JUST 5 YEARS, SHE PUBLISHED OVER 30 PAPERS.



IN 1977, SHE LEFT THE UNIVERSITY FOR FORD MOTORS, WHERE SHE WORKED ON IMPROVING MANUFACTURING AND ENGINEERING METHODS. DR. MOORE WAS A PASSIONATE ADVOCATE FOR MINORITY STUDENTS IN STEM.

Physics major Ana Lyons has created a series of 12 posters in response to renewed conversations about equity and justice in the Physics Department.

"I've always loved drawing and painting", she says, "and creating a series of portraits of influential Black physicists seemed a fun way to contribute."



A BRIEF HISTORY  
IN BRUSH STROKES

PARTICLE PHYSICS

1895-2006

THE FIRST ONE HUNDRED & ELEVEN YEARS

GERSON GOLDHABER

LBNL

UNIV. OF CALIFORNIA @ BERKELEY

In Memory of Yuval Neeman Gerson

1895 - 1919

Radioactivity  
Becquerel 1896  
Cosmic Rays  
V. Hess 1912 Marie Curie 1898  
& Pierre Curie Radium

$\alpha$  and  $\beta$  particles  
Rutherford

1897  
J.J. Thomson

$e^-$

$p$

Photon  $\gamma$

Rutherford  
1919

Einstein  
1905

photoelectric effect: Hertz 1887  
X-Rays: Roentgen 1895 ← The  
 $\gamma$ -Rays: Villard 1900  
Quantum: Planck 1900

Cloud Chamber  
Wilson 1911  
Geiger counter

Bohr model  
 $\alpha$   $\beta$   $\gamma$   $\mu$   $\nu$

Hydrogen Atom  
 $e^-$   $p$

1980-2006



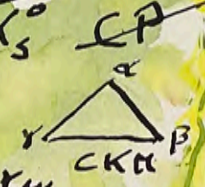
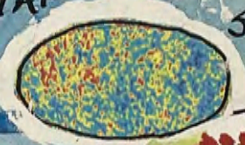
DARK MATTER  
30's ZWICKY: CLUSTERS  
70's RUBIN: GALAXIES  
90's TYSON: LENSING

COSMOLOGY

Inflation  
guth  
Linde 1980.

Baryon Oscillations  
SDSS 2005  
Eisenstein & Hu 1998

Super K Solar &  
atmospheric  $\nu$   
SNO Solar  $\nu$   
Kamland reactor  $\nu$

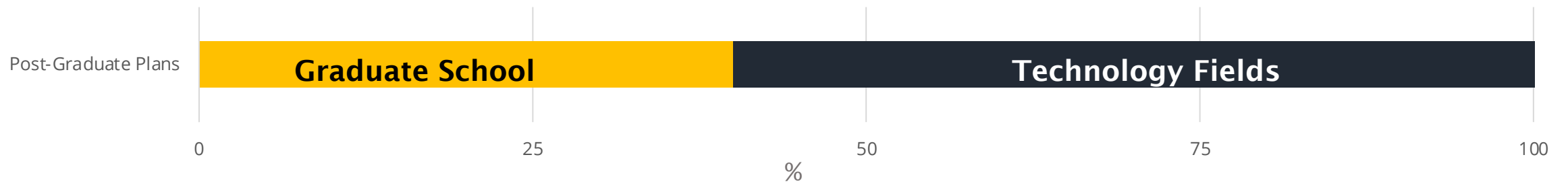


$M_D = \begin{pmatrix} 1 & & \\ & -3 & \\ & & 1 \end{pmatrix}$  or  $\begin{pmatrix} - & & \\ & - & \\ & & - \end{pmatrix}$



# Our Undergraduate Class

'22-'23 AY: 110 Graduates



- research assistant/specialist
- software engineer  
STEM teacher
- data scientist
- quantitative analyst
- quantum device test engineer

# Faculty Retirements



**Frances Hellman**

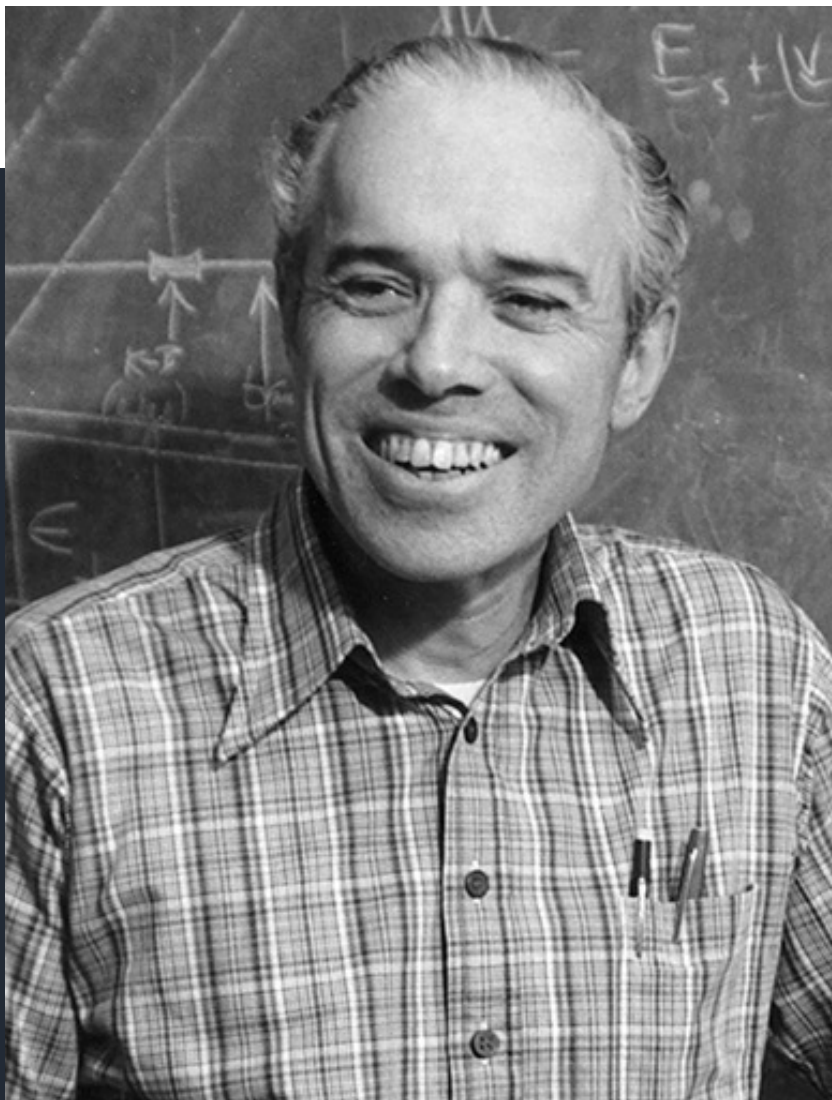


**Steve Louie**



**Marjorie Shapiro**





IN MEMORIAM

# Remembering Allan Kaufman

Allan Nathan Kaufman, Professor of Physics at UC Berkeley, passed away peacefully on December 2, 2022 in Moraga, California. He was 95.

Professor Kaufman made seminal contributions in plasma physics, specifically in the areas of wave chaos, wave kinetic equations, ponderomotive effects, quasilinear diffusion and mode conversion in nonuniform plasmas.

# Our Vision

**“I came to UCB as an undergrad from Berkeley High School in 1959. My maternal and paternal grandmothers, my mother and all of my aunts on both sides of my family preceded me, one of my grandmothers graduating from UCB in 1897, the other in 1908. I served in Physics as Facilities and Operations Manager for 24 years. Though now retired, I still love supporting the Physics Department.**

**Physics is special because of the people and their values: amazing faculty, extraordinary staff, awesome students who enjoy working together and supporting one another in achieving shared goals.”**



### **Strengthening Community**

With the devastating effects of COVID mostly behind us, revive and grow the inclusive and vibrant community that has made the Physics Department so special—the joy of contributing collectively to the success of our Department.



### **Infrastructure**

Reorganize and refresh appropriate spaces and upgrade infrastructure to attract and retain top-notch faculty, staff, and students and support cutting-edge research and teaching programs.



INFRASTRUCTURE

# Math & Physics Master Plan



Learning Pavilion Addition - View from Level 2 Bridge Connecting to Physics North



## Nextgen Teaching and Research Facilities

- Master Plan commissioned by MPS Dean Steve Kahn late 2022
- Payette and LMS selected as architects to develop Master Plan
- Explore options and pathways to meet Physics' evolving space needs and Math's vacating of Evans and future space needs
- Two scenarios being presented to Campus and UCOP leadership

**“I arrived at Berkeley in 1990 to begin my undergraduate studies at Cal. During my undergraduate years, I worked as a student assistant in the Physics Library. I joined the Physics Department in 1995 and have now been here nearly 28 years, all in our incredible Physics Student Services Unit.**

**Berkeley Physics is like no other. I have been in Berkeley Physics for a number of years now and have seen our department experience incredible achievements and also many challenges/hardships. We have made it through them all because I choose to believe that we all care and we all want to contribute to a positive and thriving community.”**



### **Strengthening Community**

As a Department (faculty, students, staff, postdocs, visitors, lecturers, etc.) and in partnership with all its members, we all need to rebuild the sense of community and collaboration in all areas.



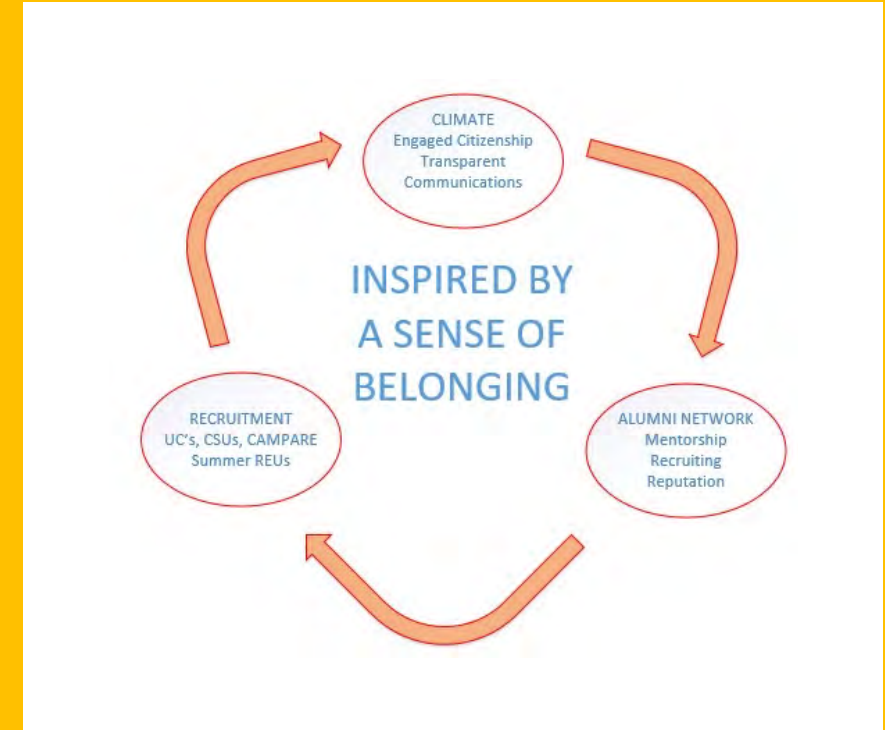
### **Support**

We should develop a realistic, workable, actionable plan for recruitment and retention of a diverse faculty and students. We also need to have a mechanism to properly support our new members when they are here.



EQUITY AND INCLUSION

# Building A Welcoming and Vibrant Community



Honoring all Traditions

An E&I plan for Berkeley Physics needs to foster a sense of belonging through all steps in the intellectual pathway





**“I joined UC Berkeley on July 23, 2013 as the Director of Instructional Support. When I arrived from the east coast, I knew no one in the bay area, and I had to leave my family behind. My first impression of Berkeley was that I was now part of a second family - my family at Berkeley.**

**Berkeley Physics is special to me because of the people, both faculty/staff and students, who embrace you into the community.”**



### **Transparency**

A transparent community contributes to better retention and a stronger bond among its constituents. It allows individuals within the community to openly express their views and share their thoughts. It enhances the quality of work and life for community members.



### **Shared Governance**

Shared governance in our community ensures a culture of trust, and mutual accountability. It promotes collaboration, a diversity of ideas, shared responsibility, collegiality, and institutional excellence.



# New Physics Department Vice Chairs



**Dan McKinsey**

Faculty Affairs



**Yury Kolomensky**

Instruction



**Martin White**

Faculty Appointments

# New Head Undergraduate Faculty Advisors



**Na Ji**



**Gabriel Orebi-Gann**



**“I've been at Berkeley since 2006, after five years working at Mills College, but I am a Bay Area native and UCB was always close by. The reputation of Berkeley Physics as a great place to work was well known before I applied to work here. This has absolutely been the case for me - I have found the staff and faculty to be excellent (whip smart, experienced, devoted, caring) and I immediately felt at home.**

**Berkeley Physics is special to me because of the people, both faculty/staff and students, who embrace you into the community.”**



### **Strengthening Community**

I also want to amplify our efforts to strengthen equity, inclusion and belonging for all individuals in our community: students, staff, faculty, postdocs, lecturers, researchers and so on. I want to be a part of a community that sees diversity as its strength and celebrates the contribution each of us makes on a daily basis.



### **Undergraduate Experience**

I am very focused on the undergraduate experience - mentoring, belonging, academic support, resources. There is so much we can do to strengthen the experience for pre-majors and majors, and inspire more students to choose, and stay, with physics at Berkeley, regardless of their eventual career path.





EQUITY & INCLUSION

# Joint Anti Racism Workshop Series with LBNL



## Be Educated, Be A Good Achiever



2022

- How to Hold Civil Discussions about Racism
- Othering and Belonging
- Expanding our Cultural Lens

## A Partnership In Discovery



2023

Exploring ways to improve mentoring.

EQUITY & INCLUSION

# 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.

<https://physics.berkeley.edu/equity-inclusion/physics-department-community-principles>



This **Handbook** was compiled by a group of Physics Staff, a subgroup of Physics Staff for Action on Racial Justice. The **Handbook** is offered in five chapters, one chapter for each of the five principles. You are invited to browse it or to refer to it as needed when you encounter challenges in implementing the **Physics Department Community Principles**. This **Handbook** is definitely a work in progress, a living document that will evolve as our community evolves. We invite you to let us hear your suggestions, questions, concerns, and ideas for improving it and making it more useful. Please don't hesitate to fill out our [feedback form](#) or to connect with any of us in person.

*Respectfully submitted, Claudia Trujillo, Kristen Greenland, Anna Hilke, and Eleanor Crump*

<b>Chapter 1: We Value Every Person</b> .....	<b>page 2</b>
<b>Chapter 2: We are Respectful</b> .....	<b>page 7</b>
<b>Chapter 3: We Learn Together</b> .....	<b>page 14</b>
<b>Chapter 4: We Speak Up</b> .....	<b>page 19</b>
<b>Chapter 5: We Strive to be Transparent</b> .....	<b>page 25</b>



# Our Events

The background features a dark grey to black gradient. On the left, there is a large, semi-transparent, light brown circular shape. On the right, there are several overlapping, semi-transparent spheres. A grid of white lines is overlaid on these spheres, creating a perspective effect. The text is positioned on the left side of the image.

# 2023 SEGRÈ LECTURE

10·30·23

John Clauser

Experimental proof that  
nonlocal quantum entanglement  
is real



**Thank you!**

Join us for refreshments  
outside the Campanile

Berkeley  
Physics