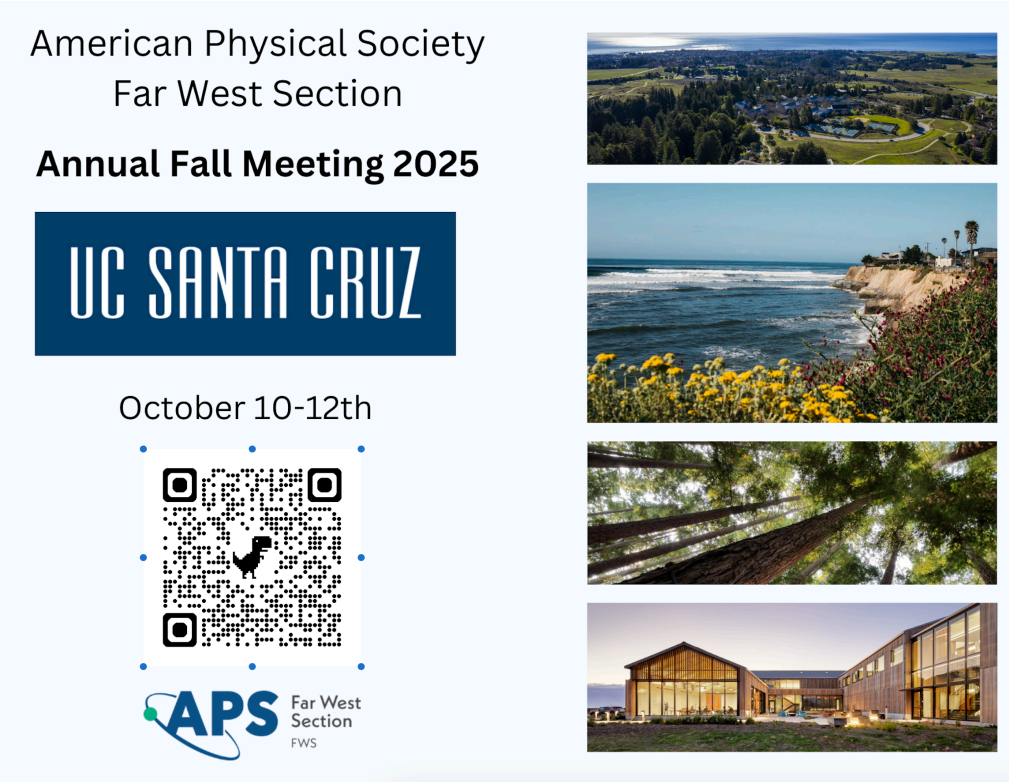
American Physical Society
Far West Section
serving California, Nevada and Hawai'i

The late 2024 Newsletter

Greetings from the Executive Committee of the Far West Section of the American Physical Society. This is the very late edition of our 2024 Newsletter. Since the purpose of our newsletters is to inform you about what we did over the past year and it serves as a record for the APS archives, we decided to not simply combine the 2024 and 2025 Newsletters into one edition, but instead share the 2024 Newsletter with you as intended. The 2025 newsletter will be forthcoming. In addition to a welcome note from our 2024 Chairs, it has a summary of our annual meeting, the list of prize winners as well as summary of our 2024 visit to Washington DC and the APS headquarters.

We want to take use this opportunity to that announce our next annual meeting will be held at UC Santa Cruz from October 10-12, 2024. We hope to see you there and we will post more info soon on our webpage at https://engage.aps.org/fws/home

Enjoy !



Letter from the 2024 Chairs


By Alexander Weber-Bargioni (2024 APS FWS Chair, Lawrence Berkeley National Laboratory) and Alla Safronova (2024 APS FWS Past Chair, University of Nevada Reno

Dear Fellow APS Member,

Welcome to what promises to be an exciting year. We extend our gratitude for your support and active participation in the Far West Section of the APS. With this newsletter, we aim to keep you informed of our accomplishments from the previous year's conference in San Diego, introduce new representatives, outline upcoming events, and elucidate ways to engage with both the Far West Section and APS at large. Central to our endeavors is the annual conference tailored to a diverse audience passionate about physics. Over the past two years we've organized successful gatherings in Hawaii and in San Diego. This year, we're thrilled to announce that the conference will take place at Cal Poly Humboldt, hosted by our colleague Prof. C.D. Hoyle. This presents a wonderful opportunity for you to explore Arcada, California, and connect with the physics community in Northern California. Speaking of community, APS fosters the connections among physicists in academia, national Laboratories and industry and aims to effectively disseminate physics knowledge. Our Far West Section, encompassing California, Nevada, and Hawaii, serves as platform for networking across academia, industry, and even among high school educators. We recognize the pivotal role high schools play in nurturing future talent, and the profound impact physicists yields in various industries. Therefore, we earnestly encourage you to advocate for APS membership within your circles, thereby strengthening our collective voice and impact.

Your membership in our section comes at no cost to you, yet it is pivotal for sustaining our efforts in serving the local physics community. APS allocates funds to sections based on membership numbers, which enables us to organize events like our annual Fall Meeting. This meeting serves as a dynamic forum for undergraduate and graduate students to present their research in an environment akin to a mini-March Meeting, fostering close interactions amidst a supportive backdrop. Looking ahead, 2025 has been earmarked as the "Year of Quantum" in commemoration of a century of quantum theory. Quantum mechanics, the bedrock of myriad physics subfields, heralds a new epoch in Information Science through Quantum Information Science (QIS). We intend to celebrate the profound impact of quantum science on technology, culture, and our understanding of the natural world at our annual fall meeting. Additionally, we're exploring collaborations with the increasing QIS industry, represented on our executive committee by Camille Stravrakas, to host supplementary events. We are looking forward to a year rich in discoveries and collaborations and hope you and your colleagues will join us by becoming active participants in the APS Far West Section.

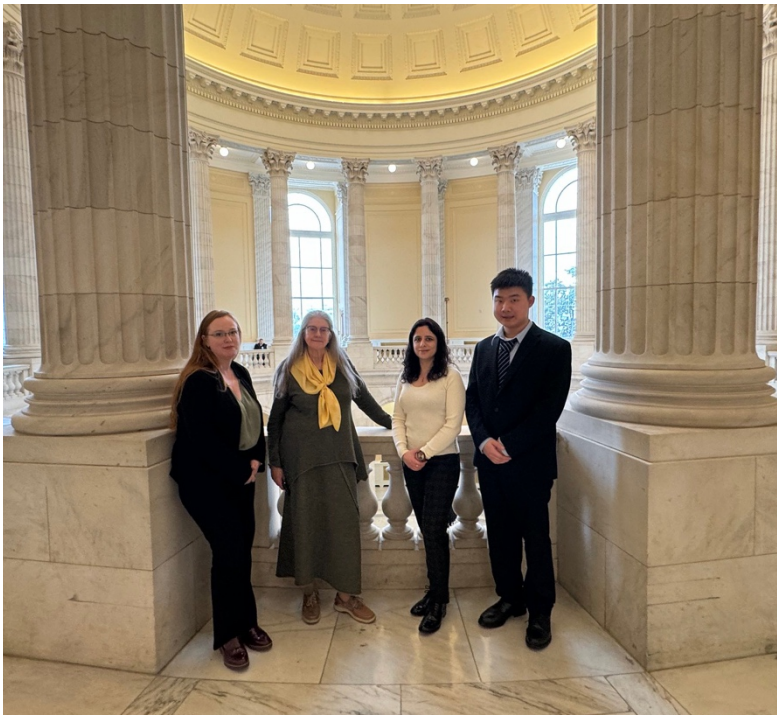
Our Executive Committee makes it all happen: Current members (in 2024) are Alexander Weber-Bargioni (Chair, LBNL), David Lederman (Chair-Elect, UC Santa Cruz), John W Price (Vice Chair California State University, Dominguez Hills), Alla Safronova (Past Chair, UNR), Hendrik Ohldag (Secretary/Treasurer, LBNL), Hope Ishii (University of Hawaii), Camille Stavrakas (PsiQuantum), Gerardo Dominguez (CSU San Marcos), Smadar Naoz (UCLA), Charles D. Hoyle (Cal State Poly, Humboldt), Alex Frano (UC San Diego), Thomas Gredig (California State University, Long Beach), Carlos Monton (University of Texas, San Antonio), and student members Mayia Vranas (UC San Diego), and Ashley Nicole Corey (CSU San Marcos). If you would like to join the Executive Committee, please let us know. We run elections every fall, and we seek a diverse and engaged group to serve on the committee.

Report from the 2023 APS Congressional Visits Day

By Camille Stavrakas (APS FWS ExComm member-at-large, PsiQuantum)

Dear APS FWS Members,

I want to share some updates from our recent participation in Congressional Visits Day (CVD), an event where APS members come together to advocate for the physics community on Capitol Hill. Over the years, these meetings have proven to be one of the most effective ways to influence policymakers, and our APS members have been instrumental in championing physics with Congress.



Ahead of the Leadership Meeting of the APS held in Washington DC last January, I had the privilege of representing APS alongside two fellow physicists from academia and an undergraduate student. Together, we engaged in insightful discussions with key congressional offices, including several representatives and Dr. Aditi Gupta from the Senator of California's office.

Our discussions covered a range of important topics crucial to the advancement of physics and scientific research, including:

1. **Federal Investment in Research and Development:** We stressed the importance of federal funding in driving scientific innovation across various disciplines of physics.
2. **Visas and Immigration for STEM:** We advocated for policies to attract and retain international talent in STEM fields, promoting diversity in the scientific workforce.
3. **Methane Emissions Reduction from Oil and Gas Industries:** We discussed strategies for monitoring and reducing methane emissions within the oil and gas sector, focusing on environmental sustainability.
4. **Federal Guidelines for Fair Graduate Student and Postdoc Compensation:** We highlighted the need for fair compensation for graduate students and postdoctoral researchers, recognizing their crucial role in scientific discovery.
5. **National Quantum Initiative Act Reauthorization:** We supported the reauthorization of the National Quantum Initiative Act to ensure continued support for quantum science and technology initiatives, in line with APS's commitment to quantum research.

I am thrilled to share that our advocacy commitments have already yielded results, with the reintroduction of the Methane Emissions Mitigation Research and Development Act by Rep. Sean Casten (IL-6).

Furthermore, our collective efforts reached 110+ offices - over half of the targeted congressional offices during the Congressional Visit, effectively making a significant impact. I want to extend my heartfelt gratitude to all participants for

their dedication to advancing the interests of the physics community. For the FWS section: Cherrill Spencer, Minta Akin, Matthew Lu, Brianne Gutmann, Ajay Gopinathan, Mayia Vranas, Yuri Suzuki and Lijun Ma.

Report from the 2023 Annual Meeting at UC San Diego



By Alla Safronova, University of Nevada, Reno (Program Committee Chair, APS FWS Past Chair), Alex Frano, University of California, San Diego (Meeting Chair, APS FWS ExComm member), and Mayia Vranas University of California, San Diego (APS FWS ExComm student member)

The Far West Section annual meeting took place from October 6 to October 7, 2023, at the University of California, San Diego. It was organized by the Executive Committee (ExCom), with notable efforts from student member Mayia Vranas. The conference received a significant donation from the UCSD Physics Department, contributing to its success. The program featured a blend of invited and contributed presentations, highlighted by compelling talks from five plenary speakers: On Friday, from Nigel Goldenfeld (UCSD) on the life and death of turbulence; Tiffany Santos (WDC) on the essentials for a high-density magnetic memory, and Shelley Wright (UCSD) about coupling the search for technosignatures with multi-messenger astrophysics. A very intriguing and inspiring after-dinner talk was presented by Aomawa Shields (UCI) following the recent publication of her remarkable book “Life on Other Planets. A Memoir of Finding My Place in the Universe”. On Saturday, Marina Radulaski (UCD) described new prospects of scalable quantum nanophotonics with color centers. Finally, we learned about LUX-ZEPLIN (LZ) first science results from Alvine Kamaha (UCLA). Meeting participants presented their research in 10 parallel oral sessions held during both days and in the poster session on Friday. A Career Workshop was held as a last session on Saturday and attracted a lot of students. It featured talk by Kathreen Thome “Pathways in Physics” and an exciting discussion with panelists).

Full Program: https://meetings.aps.org/Meeting/FWS23/APS_epitome

Group Photo of the 2023 Annual Meeting attendees during the lunch on the second day of the meeting.

In addition to academic talks, the APS FWS meeting also hosted several events targeted at advancing the careers of undergraduate and graduate students in attendance. The first event, targeted at undergraduate students, was entitled "Going to Grad School", and was sponsored by the local Society

of Physics Students chapter. The workshop featured a talk discussing how to know if graduate school is a good fit, what you can do before applying to improve your chances, and how to apply to Ph.D. programs and fellowships. After the talk, students were given the opportunity to speak to graduate students at UC San Diego at various points in their degree.

At the end of the conference, students also were given the opportunity to attend a career workshop. This workshop featured a talk by APS Career Mentoring Fellow Kathreen Thome, followed by a panel with local industry and academic leaders, featuring Anthony Allen (Fusion Scientist at General Atomics), Chelsea Ballinger and Myles Ishihara (Systems Engineers at Booz Hamilton), Pablo Prado (CEO of Livivos), Chad Kishimoto (University of San Diego Faculty), and Alex Frañó (UC San Diego Faculty). Kathreen Thome discussed her career in physics and pathway to her current position at General Atomics, the impacts involvement that APS has had on her career, and what her work looks like now as a physicist in industry. In the panel, participants discussed what led them to their current career, how graduate education did or did not benefit their current position, what their day-to-day work looks like, and what students can do now to set themselves up for success in a similar career.

Announcement of the 2024 Meeting

By C. D. Hoyle (APS FWS ExComm member-at-large, Cal Poly Humboldt)

We are excited to welcome you to Cal Poly Humboldt on California's beautiful North Coast for the 2024 Annual Meeting of the Far West Section of the American Physical Society! Cal Poly Humboldt is one of the 23 campuses of the California State University system and is located in Arcata, California on the unceded lands of the Wiyot people, where they have resided from time immemorial. We invite you to enjoy the conference as well as the multitude of cultural and outdoor activities that the region offers, such as the nearby Redwood National and State Parks and Humboldt Bay recreation sites. The larger nearby town of Eureka has a quaint historic downtown area and a large arts community. The Cal Poly Humboldt Department of Physics & Astronomy is growing and includes more than 50 physics and astrophysics undergraduate majors, and several on-site research programs that include fundamental physics/astrophysics investigations as well as multidisciplinary work in Oceanography, Geophysics, and Engineering. Cal Poly Humboldt is a scenic 5-hour drive north of the Bay Area. Alternatively, you can also arrive by air with United or Avelo airlines to our local California Redwood Coast – Humboldt County Airport (ACV). United air service runs frequently from Las Angeles (LAX), San Francisco (SFO), and Denver (DEN), while Avelo has regular service from Burbank (BUR). We look forward to hosting you among the redwoods!

APS FWS Student Prize Winners in 2023

You can find this list as well as all previous winners on our webpage under the 'Honors" section, https://engage.aps.org/fws/honors/prizes-awards

Kennedy Reed Award for Best Theoretical Research by a Graduate Student

- **1st place:**
  Siva Mythili Gouguntla (California State University, Fresno) for *"Field Momentum and the Dirac String" Field momentum and the reality of the Dirac string"*
- **2nd place:**
  Rebekah Hermsmeier (University of Nevada, Reno) for *"Magnetic tuning of electric dipole moments and dipolar interactions of alkali-dimer molecules"*

Margaret Burbidge Award for Best Experimental Research by a Graduate Student

- **1st place: (shared):** Mayia Vranas (University of California San Diego) for *"Magnetic Order in EuIn2As2 Investigated with Resonant Soft X-ray Scanning"*

  Travis Griffin (University of Nevada, Reno) for *"Model Independent Measurement of Electron- Ion Equilibration Rates Across the Solid Liquid Phase Boundary in Warm Dense Gold"*
- **2nd place: (shared):**
  Maximilian Huber (Lawrence Berkeley National Laboratory) for *"Ultrafast control of the electronic properties of TiSe2 with light"*

  Jake Spisak (University of California San Diego) for *"Constraints on axion-like polarization oscillations in the cosmic microwave background with POLARBEAR"*

Steven Chu Award for Best Research by an Undergraduate Student

- **1st place:**
  Mireya Gonzales-Rivera (California State University San Marcos) for *"Reflectometry: A New Probe of Quantum Device"*
- **2nd place (shared):**
  Faith Poutoa (San Diego State University) for *"Developing a Long-Range Optical Oil Spill Detector Using Fluorescence"*

  Chaitanya Bashyam (University of California, Los Angeles) for *"Quality Control Testing & Data Analysis: Preparing for Run 4 of ATLAS at the Large Hadron Collider"*

  Riley J. Carpenter (Santa Clara University) for *"Low-temperature circuit component characterization and nanofabrication process tuning for cryogenic dark matter detectors"*

Helen Quinn Award for Education or Undergraduate Research Theory

- **1st place:**
  Cheyanne E. Shariat (University of California Los Angeles) for *"Dynamical Evolution of White Dwarf Triples in the Era of Gaia"*

Isabela E. Camacho (Santa Clara University) for *"Testing Fluorescent Protein Sequence Entropy for Correlation with Protein Properties"*

- **2nd place**
  Dilon E. Suliman (San Diego State University) for *"Simulating the Quantum Ising Model with Cloud Quantum Computers"*

SPS Poster Prize

- **Graduate:**
  Jyotsna Gidugu (University of California, San Diego) for *"A study of dissipative models based on Dirac matrices"*
  Jared E. Pagett (University of California, Santa Barbara) for *"Potassium condensates in optical tweezers"*

- **Undergraduate:**
  Isabella R. Martinez (University of California, San Diego) for *"Mitigation techniques used in Magneto Inertial Fusion"*
  Antonia C. Hekster (Harvey Mudd College) for *"UV Freeze-in Leptogenesis via DM Oscillations"*
  Brooke Olsson (Colorado School of Mines) for *"Oscillatory Mechanical Perturbations in Active Fluids: Probing Dynamic Properties and Resonant Behavior"*

Please join me in congratulating the prize winners for their outstanding research presented at the 2023 meeting in San Diego!