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

**Summer 2022 Newsletter**

# Letter from the Chairs

*By Hope Ishii, University of Hawai'i (Chair, top photo)*
*and Alex Frano, University of California, San Diego (Past Chair, bottom photo)*

Dear Fellow APS Member,

Thank you for your support of the Far West Section of APS. This newsletter serves to keep you informed about the activities of your local section.

First, if you or your colleagues are not currently FWS members, we encourage you join the section! Your section membership if **FREE to you**, but it is critical to our ability to continue to offer our services to our local physics community since sections receive funds from APS "Central" based on their membership numbers. You can add FWS as a unit when you renew your APS membership or simply click on the "Join FWS" link on our section website (https://engage.aps.org/fws/home). Your membership and the financial support we receive from APS as a result, allows us, most notably, to organize our annual Fall Meeting where many undergraduate and graduate students showcase their scientific research to their fellow colleagues in a forum like a mini-March Meeting, which allows for close interactions in a cozy and supportive environment. We provide travel support for students to attend meetings, award cash prizes for best undergraduate student, graduate student and postdoc talks and posters and also support career development workshops for budding physicists. In addition, the funds allow us to organize and participate in Congressional Visits to advocate to our senators and representatives for support of scientific research in physics as vital to the well-being of our nation. Please take a moment to join.

Thank you to all our current members! Over the last two years, despite the pandemic, we have been able to host our annual meetings in a virtual format. We have also participated in virtual Congressional visits. We are very excited about the Fall meeting this year, which will take place in Hawai'i on October 7-8, 2022. Read more in the news segments that follow, and stay tuned for additional information!

Our Executive Committee makes it all happen: Current members are Hope Ishii (Chair, UHawai'i, Mānoa), Alla Safronova (Chair-Elect, UNR), Alexander Weber-Bargioni (Vice-Chair, LBNL), Alex Frano (Past-Chair, UC San Diego), Hendrik Ohldag (Secretary/Treasurer, LBNL), Veronica Bindi (UHawai'i, Mānoa), Jake Koralek (SLAC), Donnell Walton (Corning Inc.), Gerardo Dominguez (CSU San Marcos), Smadar Naoz (UCLA), Charles D. Hoyle (Cal State Poly, Humboldt), and student members Demitri Call (UNR) and Andrew Kuhlman (UHawai'i, Mānoa). 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!

Finally, we are excited about the gradual return to more in-person interactions after two complex years. We hope your physics-focused endeavors and adventures continue to be successful, and we hope to see you in Hawaii soon!

# 2022 FWS Annual Meeting, University of Hawai‘i at Mānoa, Honolulu

*By Phillip von Doetinchem, University of Hawai‘i (Conference Chair, top photo)*
*and Alla Safronova, University of Nevada, Reno (Chair-Elect & Program Committee Chair, bottom photo)*

Our annual meeting is scheduled for October 7-8, 2022 at the University of Hawai‘i at Mānoa in Honolulu, Hawaii. Given the reduction in case numbers and high vaccination rates for COVID-19, we are planning an in-person meeting.

We are excited to finally see our long-term goal of an annual meeting in Hawaii coming to fruition. In 2015, the California-Nevada section of the APS added Hawai‘i to the fold and became the Far West Section. Ever since then, section leadership has strived to strengthen the bond between the mainland and Hawai‘i members. In 2019, the APS FWS partnered with the Physics Department at the University of Hawai‘i at Mānoa to sponsor a meeting held in Hawai‘i, a one-day symposium showcasing physics research performed in Hawai‘i alongside mainland research. The plenary speaker, Prof. Bruce Houghton, regaled us with a talk about the geophysics of volcanoes, and the meeting was a great success. Following on that success, FWS leadership planned to have the 2020 annual meeting in Hawai‘i; however, the COVID-19 pandemic intervened, and our plans have been postponed until this year.

The 2022 FWS Annual Meeting will feature plenary talks from a diverse range of subjects, parallel sessions with talks contributed by members, a poster session and opportunities to mingle and network with colleagues and friends. As in previous years, we plan to offer some travel support for students who present at the conference.

**Information about the 2022 FWS Annual Meeting can be found at this website:**

https://www.phys.hawaii.edu/apsfws2022/

**We sincerely hope to see you all at the University of Hawai‘i at Mānoa in October!**

← The 2022 FWS Annual Meeting will be held in the East-West Center on the lush campus of University of Hawai‘i at Mānoa.

Attendees can stay in Waikiki and take a ~20 minute bus ride to campus. ↓

## Looking ahead to 2023…

the 2023 FWS annual meeting will be at University of California, San Diego and hosted by our past chair Alex Frano!

# Recollections from the 2021 (virtual) FWS Annual Meeting

*By Hendrik Ohldag, Lawrence Berkeley Lab (Secretary-Treasurer)*

The Far West Section annual meeting was held Friday, October 29 through Saturday, October 30, 2021, and due to the COVID-19 pandemic, it was an all-virtual meeting. The meeting chair, Prof. Alex Frano and his team organized a wonderful on-line meeting using Gather Town and Zoom. The on-line forum on Gather Town was designed by UCSD students Mayia Vranass, Reno Sammans, Sarah Cooke, and Brandon Gunn who did a truly outstanding job setting up a gathering place for all! The on-line forum allowed us to see and talk with each other and to enter virtual meeting rooms where we joined Zoom rooms and listened to presentations.

The program consisted of invited and contributed presentations. We heard exciting talks from four plenary speakers: On Friday, Anne Andrews (UCLA) spoke about brain neurotransmitter recording enabled by aptamer-field-effect transistors, a fascinating look into the interface between biology and condensed matter physics. Johanna Weker (SLAC) then talked about amazing advances in characterization of battery degradation mechanisms using synchrotron-based methods. On Saturday, William Evans (LLNL) described new developments and exciting prospects for high-pressure science in static and dynamic experiments. Finally, we learned about ultrafast X-ray studies of strongly correlated quantum materials from Roopali Kukreja (UC Davis). Meeting participants presented their research in parallel oral sessions and in poster sessions held during both days. There were also opportunities for networking and towards the end of the day on Friday, we enjoyed a cozy "fireside chat" with Eric Kaplan and David Saltzberg, script writer and science advisor, respectively, for "The Big Bang Theory", the popular TV sitcom about the lives of a group of scientists at Caltech.

## 2021 Far West Section Awards

Selecting the best presentations was a challenge because the talks and posters this year were outstanding. After considered deliberations, the judges have awarded the 2021 section prizes. Congratulations to our awardees!

Graduate students:
**Vinh Tran** (California State University, Long Beach): Kennedy Reed Award for Best Theoretical Research ($400)
**Sydney Ostrom** (University of California, Davis): Margaret Burbidge Award for Best Experimental Research ($400)

Undergraduate students:
**Tanner Melody** (San Jose State University): Steven Chu Award for Best Research ($300)
**Ian Sysyn** (University of San Diego): Helen Quinn Award for Best Educational or Undergraduate Research Theory ($300)

High school students:
**Daniel Banin** (Piedmont High School): Best presentation by a high school student ($300)

Best poster:
**Emily Ord** (Cal Poly Humboldt): Best poster award ($300)

***Huge congratulations to our awardees!***

# The Far West Section goes to Washington (over Zoom)

*By Hope Ishii, University of Hawai'i (Chair)*

### APS Policy and Advocacy

Members of the APS FWS Chair Line and a student member of our Executive Committee (ExCom) participated in the annual APS Congressional Visits Day on January 26, 2022. This year, due to the COVID-19 pandemic, the visits with congressional offices were held via Zoom.

The APS' Congressional Visits Day is organized by the APS Office of Government Affairs to bring physicists to the Hill to talk about policy that impacts our community. APS staff train volunteer physicists in what to expect during visits and how to effectively and efficiently advocate for non-partisan issues of relevance to APS members. Appointments are arranged with staffers, and sometimes, the congressperson, so that each physicist speaks with his/her/their own representative. Briefings were prepared by the APS on a set of topics of immediate concern that provided solid data to support our conversations in Congressional offices. Groups of physicists selected topics that they had personal interest in discussing.

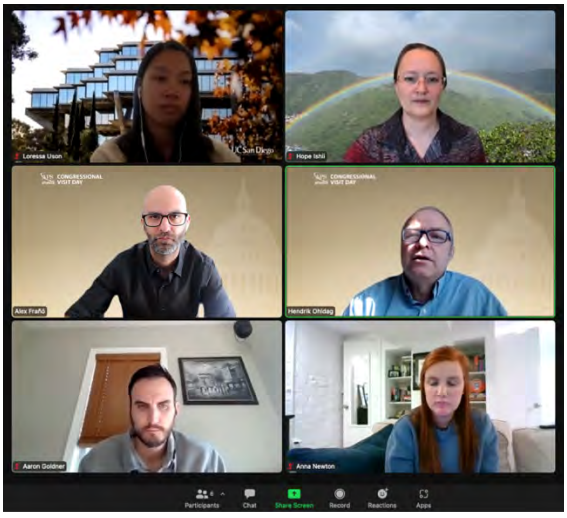
Topics for advocacy this year (in random order) were:

A) Federal research funding – encouraging completion of FY2022 appropriations with the robust investments needed for US competitiveness;
B) Methane emissions – championing an effective national approach to monitoring to inform climate change mitigation;
C) STEM teachers – focusing on ameliorating the chronic shortage of high-quality STEM teachers in the US;
D) International STEM students – supporting pathways to retain international talent as key to innovation and the US economy;
E) US missile defense – urging a realistic testing and assessment program for US missile defense systems.

**ExCom student member, Demitri Call** (photo at left), participated in the APS Congressional Visits Day this year and had this to say of his experience:

*"Congressional Visits Days are an incredible opportunity to step away from the day-to-day focus of a physics student and participate in advocating for the concerns of the greater physics community. Additionally, the experience and skills learned while meeting with congressional offices can be useful in almost any career in a STEAM field. Beyond the practical experiences gained, Congressional Visits Days are personally rewarding and motivating. The real and visible effect that students' stories can have on congressional offices' policy focus really shows how important student voices are and makes one more excited to study further, and the added benefit of meeting and making lasting connections and friendships with physicists all over the country is such a great and unique experience. I would recommend any physics student to participate in Congressional Visits Days or even reach out to your local state and federal government representatives as an individual!"*

In addition to APS Congressional Visits, several members of the FWS Chair Line also participated in visits, arranged through UC San Diego's Government and Community Relations Department, with staffers for several congressional subcommittees: House Science – Energy, House Science – Research and Technology, House Appropriations – Energy & Water, House Appropriations – Commerce, Justice, Science, and Senate Appropriations – Energy & Water Subcommittees. In a view familiar to many of us from these past pandemic years, the accompanying screen-shot shows one of our Zoom visits, hosted by Loressa Uson (UCSD), with Executive Committee members Hope Ishii, Alex Frano and Hendrik Ohldag talking with Congressional staffers Aaron Goldberg and Anna Newton from the Senate Appropriations Energy & Water Subcommittee.



### Report from the APS Leadership Meeting

Current FWS Chair Line members are encouraged each year to attend the APS Leadership Meeting. This year's meeting was held online on January 27-28, 2022, and it included several distinguished speakers and panel discussions that covered a range of topics. These included the balance between academic freedom and research security policies and the impact on international cooperation and retention of STEM talent; the extent, causes, and impact of scientific misinformation, and what might be done to counter these issues; critical global scientific and social challenges and factors limiting global scientific collaboration, including visas, supply chain constraints, workforce shortfalls, misinformation, research security, political will and diversity; and increasing inclusivity in physics and how to avoid devaluing students whose goals and aspirations don't neatly align with the role of academic researcher.

APS section leadership also had the opportunity to attend the APS annual business meeting and attend sessions on topics such as leadership training, finance, inclusive meeting practices, careers and public engagement, and government affairs.

## Opportunities for Action and Engagement

*By ExCom members*


### The APS Science Trust Project

A recently announced resource that FWS members may be interested in exploring is APS' brand-new **Science Trust Project**. The goals of the project are two-fold:

1) Developing better understanding of the extent, causes, and impact of the spread of scientific misinformation
   *and*
2) Empowering APS members to combat scientific misinformation in their professional lives.

Interested in learning more? Visit http://www.aps.org/programs/science-trust.cfm or feel free to contact Zack Pruett (zpruett@aps.org), Claudia Fracchiolla (fracciolla@aps.org) or Allie Lau (lau@aps.org) for more information.

### The APS IDEA Network

Recently the American Physical Society added the **Inclusion, Diversity, Equity Alliance Network** to their portfolio of initiatives (https://www.aps.org/programs/innovation/fund/idea.cfm). The purpose of the network is to empower and support physics departments, laboratories, and other organizations to identify and enact strategies for improving diversity, equity, and inclusion (DEI) by establishing a community of transformation. To achieve this goal, the APS has held several workshops over the past two years where participants were able to learn about subjects like, e.g., social theories of change or concepts of psychological safety. While these subject matters have become very relevant to our daily professional and private lives, our education and training often did not prepare us for such challenges. For this reason, the participants of the workshops are asked to form local IDEA groups in their organizations so that they can discuss IDEA related concepts with their colleagues and ultimately form a community of transformation as intended. If you are interested in the network, you may check out the DEI department in your organization or contact APS directly (idea@aps.org) for more information about network activities in your area.

### The Conference for Undergraduate Women in Physics in the Far West Section

Every year the APS organizes the Conference for Undergraduate Women in Physics (CUWIP). The conference is organized at different locations each year and, because of the huge demand, it is spread out over dozens of locations. The conference program is coordinated so that all participants – independent of their locations – will have a similar experience. Each location will host 100–200 participants. Detailed information about past events and the program itself can be found here: https://aps.org/programs/women/cuwip/.

The number of students interested in participating in CUWiP each year is particularly high within our section, and it has become difficult to find enough local host institutions. For this reason, the APS has coordinated with universities and

national laboratories in Berkeley, Stanford, Santa Cruz, Merced and Davis to form the Northern California CUWiP consortium. The consortium members agreed to organize one CUWiP conference every year at a different location for the foreseeable future. To help with these efforts, the consortium has recruited the support of dozens of other institutions from Northern California, e.g. local state universities. The next CUWiP meeting will take place in January 2023 in Merced and Santa Cruz.

## APS Medal and Society prizes to local physicists

We take this opportunity to recognize recent APS awardees in our region. Congratulations on your significant contributions!

**2022 Max Delbruck Prize in Biological Physics**
**Terence Tai-Li Hwa, University of California, San Diego**
*For developing quantitative studies that reveal fundamental constraints on bacterial physiology, and for formulating simple phenomenological theories that quantitatively predict bacterial responses to genetic and environmental changes.*

**2022 John H. Dillon Medal**
**Jian Qin, Stanford University**
*For the advancement of analytical and computational tools in the thermodynamics and morphology of ionic or ion-containing polymeric materials.*

**2022 Prize for a Faculty Member for Research in an Undergraduate Institution**
**Derek F. Jackson Kimball, California State University - East Bay**
*For innovative methods in dark matter detection, exemplary contributions to research, and high impact teaching to a diverse undergraduate student body using research projects.*

**2021 Dwight Nicholson Medal for Outreach**
**Enrico Ramirez-Ruiz, University of California, Santa Cruz**
*For innovations in mentoring, such as the Lamat Program, all of which have demonstrated how members of historically marginalized populations can thrive, lead, and advance scientific enterprise in astronomy and related fields.*

**2021 Stanford R. Ovshinsky Sustainable Energy Fellowship**
**Jesús M. Velázquez, University of California, Davis**
*For transformative research accomplishments advancing the production of solar fuels, elucidating fundamental design principles underpinning negative emissions science, and for articulating a bold vision of a sustainable chemical industry using $CO_2$ instead of fossil fuels as the primary feedstock.*

**2022 Henry Primakoff Award for Early-Career Particle Physics**
**Benjamin Nachman, Lawrence Berkeley National Laboratory**
*For innovative contributions to the search for new physics in collider data incorporating original machine learning algorithms, and for the effective communication of these new techniques to the broader physics community.*

**2022 Arthur L. Schawlow Prize in Laser Science**
**Tony F. Heinz, Stanford University**
*For ground-breaking contributions to the development and application of laser spectroscopic techniques to probe surfaces, interfaces, and nanoscale materials.*

The full list of APS awardees can be found here: https://www.aps.org/publications/apsnews/updates/spring2022.cfm