Fernanda Psihas

Report: 2020 HEP Advocacy Effort

Annual Advocacy Trip

For over 35 years, members of the three major HEP users communities have come together for this visit to Congress.

This effort is possible thanks to the support from:

URA UNIVERSITIES RESEARCH ASSOCIATION

And participation from the HEP community

APS DIVISION OF PARTICLES & FIELDS

Fermilab UEC

SLUO SLAC USERS ORGANIZATION

US Large Hadron Collider Users Association US LUA

$F\Psi$ *with the advice of advocacy experts Lewis-Burke*

Annual Advocacy Trip

For over 35 years, members of the three major HEP users communities have come together for this visit to Congress.

The goal of the trip is to visit:

Congressional offices (meet with their staff)

Congressional committee staff

The Administration (Office of Management and Budget and Office of Science and Technology Policy)

Funding agencies (DOE and NSF)

Our message

Thank them for their support.

Motivate this year's ASK

Let me tell you about the P5!

The HEP community making hard choices, cohesively strategizing, and all driven by the science is a BIG deal. We ask for funds for the science that is priority, not just for anything we could do.

These are the exciting questions.

Are they interested in science? Support the ASK and priorities with a BASIC explanation of the science we are pursuing.

These are the exciting people.

These are the exciting projects.

Here is how HEP benefits you/us.

How much money is spent in their district (procurements)?
How does HEP benefit society?

… the U.S.?

…education?

…industry/the work-force?

…national security?

The HEP Field is doing great!

Tell them about our progress, discoveries, plans, etc. Let them know P5 projects are ***on time and on budget****. Do they know about HEP already? Answer their questions, chat about your passion for the science*

The U.S. is a global HEP leader.

We highlight how their support allows U.S. science to thrive and lead globally. Point out the projects, discoveries, and inventions that make the U.S. a great place to do HEP.

Material we bring

The U.S. particle physics community asks for your support of the P5 Report's strategic plan by the passage of appropriations bills for FY 2021 that include:

At least $1285M for High Energy Physics within the Department of Energy's Office of Science

At least $9B for the National Science Foundation

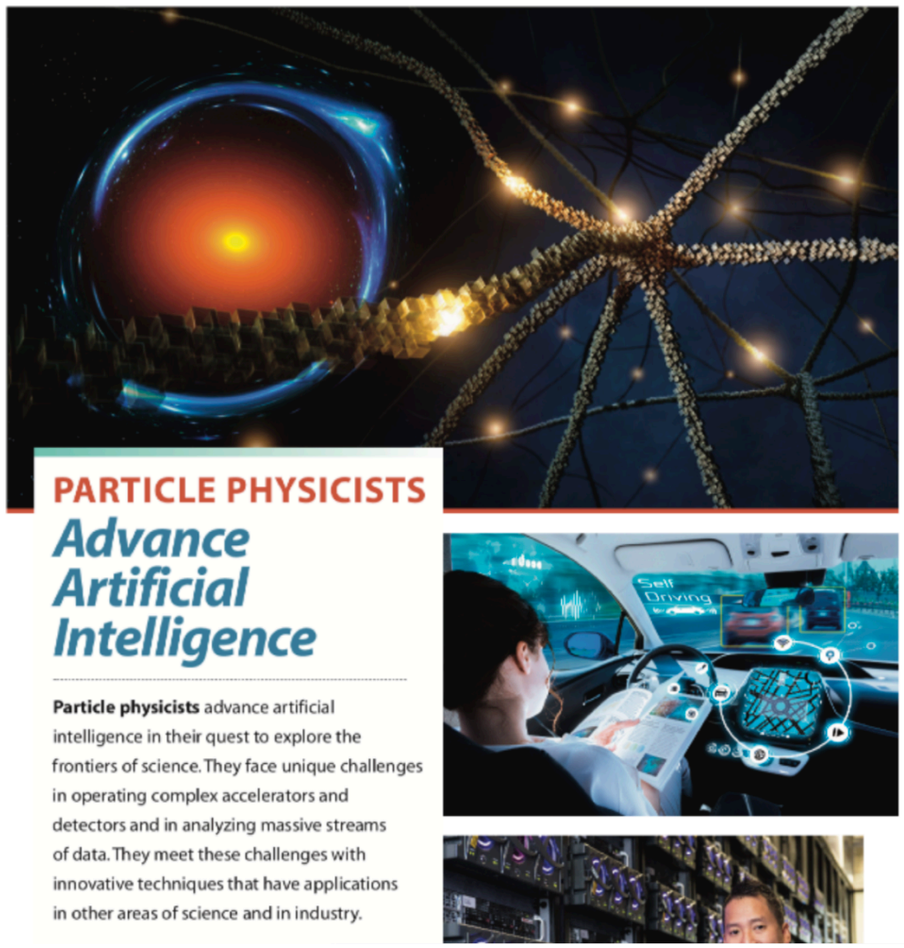
This level of funding will provide needed support for scientific researchers at universities and national laboratories throughout the nation and will advance P5 priority projects, operations of existing and recently completed large facilities, and the completion of small and medium-sized projects, to explore the nature of neutrinos, the Higgs Boson, dark matter, dark energy, and the yet-to-be-discovered forces that govern the origin and evolution of our universe.

The "Ask"

usparticlephysics.org brochures are developed in collaboration with Michael Cooke and Andrea Peterson at DOE.

All content of the packets is done by community groups throughout the year. UEC, SLUO, USLUA and DPF are all represented in this community effort.

This trip allows us to **address questions from Congress** by incorporating their feedback and answer questions with new materials and information.



PARTICLE PHYSICISTS

Advance Artificial Intelligence

Particle physicists advance artificial intelligence in their quest to explore the frontiers of science. They face unique challenges in operating complex accelerators and detectors and in analyzing massive streams of data. They meet these challenges with innovative techniques that have applications in other areas of science and in industry.

Building for Discovery

Strategic Plan for U.S. Particle Physics in the Global Context

usparticlephysics.org

The P5 Report provides the strategy and priorities for U.S. investments in particle physics for the coming decade.

The top four priorities in 2020

Advance the High-Luminosity Large Hadron Collider (HL-LHC) ac
detector upgrade pro
the highly successfu
partnership with CER
near-term large projec

Advance the Long-
(LBNF), Deep Under
(DUNE), and Proton
working with interna
prototypes, initial sit
procurements. This
project in its time fra

In addition to the construction projects, support

The P5 strategy has been very successful. Projects are on schedule and within budget.

Recent results

The **NOvA experiment** published a measurement of **oscillations of anti-neutrinos**, a key milestone in their program, and the **T2K experiment** reported evidence that the **neutrino-antineutrino asymmetry** may be non-zero.

The LHC experiments reported many important and precise results, continuing the program of using the **Higgs as a new tool for discovery**. The ATLAS and CMS experiments made the first-ever observations of the scattering of W bosons. The LHCb experiment observed a matter-antimatter asymmetry in charm quark interactions for the first time.

The Dark Energy Survey (DES) completed its data taking and published new combined measurements of cosmological parameters related to dark energy. The ADMX-G2 experiment performed the world's most sensitive **search for axions**, hypothesized to solve one of the most persistent problems in particle physics and which could also be a component of **dark matter**.

Theoretical physicists have characterized new mathematical functions central to precision calculations of processes at the LHC. They also continued to develop new ideas about the quantum structure of spacetime and the nature of dark matter.

Program advances in 2019

Building upon the historic 2015 and 2017 bilateral U.S.-CERN agreements, U.S. and CERN scientists successfully continued their cooperative partnership at the LHC and the international neutrino program hosted by Fermilab. The ProtoDUNE neutrino detector successfully completed its first test run. Phase-I upgrades to the ATLAS and CMS detectors were successfully installed.

Fermilab set a world record of 14.1 Tesla for an accelerator steering magnet, an important achievement toward the next generation of colliders.

The inner detector of the **LZ dark matter experiment** was installed underground in South Dakota and will soon be operational. Two **Dark Energy** experiments progressed well: **DESI** construction was completed, with commissioning now underway; and the huge lenses and all the detector modules for the **Rubin LSST Camera** were completed, with integration and testing proceeding.

The next-generation cosmic microwave background facility, CMB-S4, which will probe in unique ways the physics of the very early Universe at energies far higher than can be achieved in earthbound accelerators and will also reveal neutrino properties, progressed.

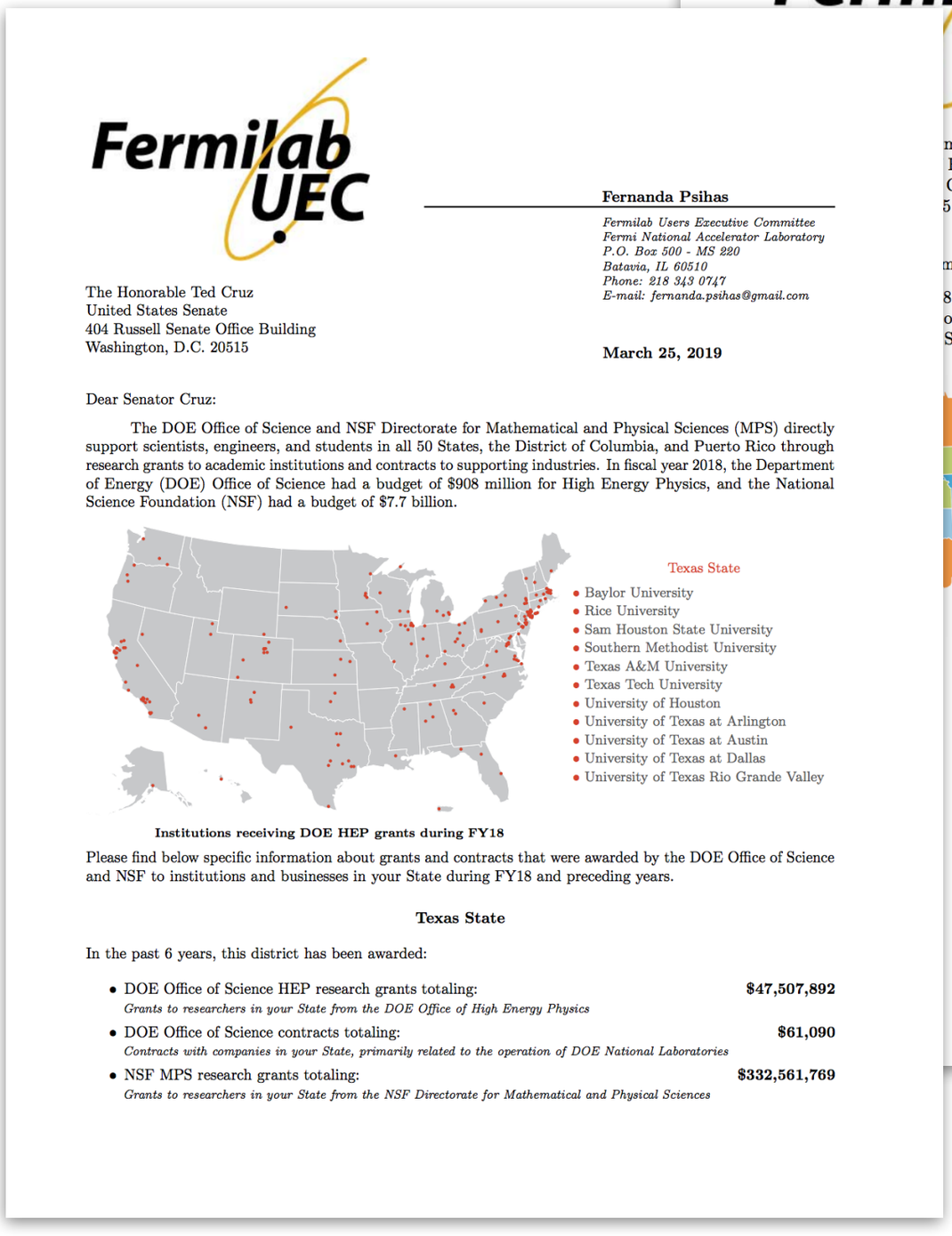
New this year.
Advance AI
P5 progress Updates

Materials from WHIPS*

Automated, district-specific grant and procurement information

District-specific materials provide direct links between the appropriated funds and economic benefits locally.

Developers:
Rob Fine
Michael Baumer
Matthew Feickert
Justin Vasel
Fernanda Psihas



Fermilab UEC

Fernanda Psihas
Fermilab Users Executive Committee
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Phone: 218 343 0747
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The Honorable Ted Cruz
United States Senate
404 Russell Senate Office Building
Washington, D.C. 20515

March 25, 2019

Dear Senator Cruz:

The DOE Office of Science and NSF Directorate for Mathematical and Physical Sciences (MPS) directly support scientists, engineers, and students in all 50 States, the District of Columbia, and Puerto Rico through research grants to academic institutions and contracts to supporting industries. In fiscal year 2018, the Department of Energy (DOE) Office of Science had a budget of $908 million for High Energy Physics, and the National Science Foundation (NSF) had a budget of $7.7 billion.

Institutions receiving DOE HEP grants during FY18

Texas State

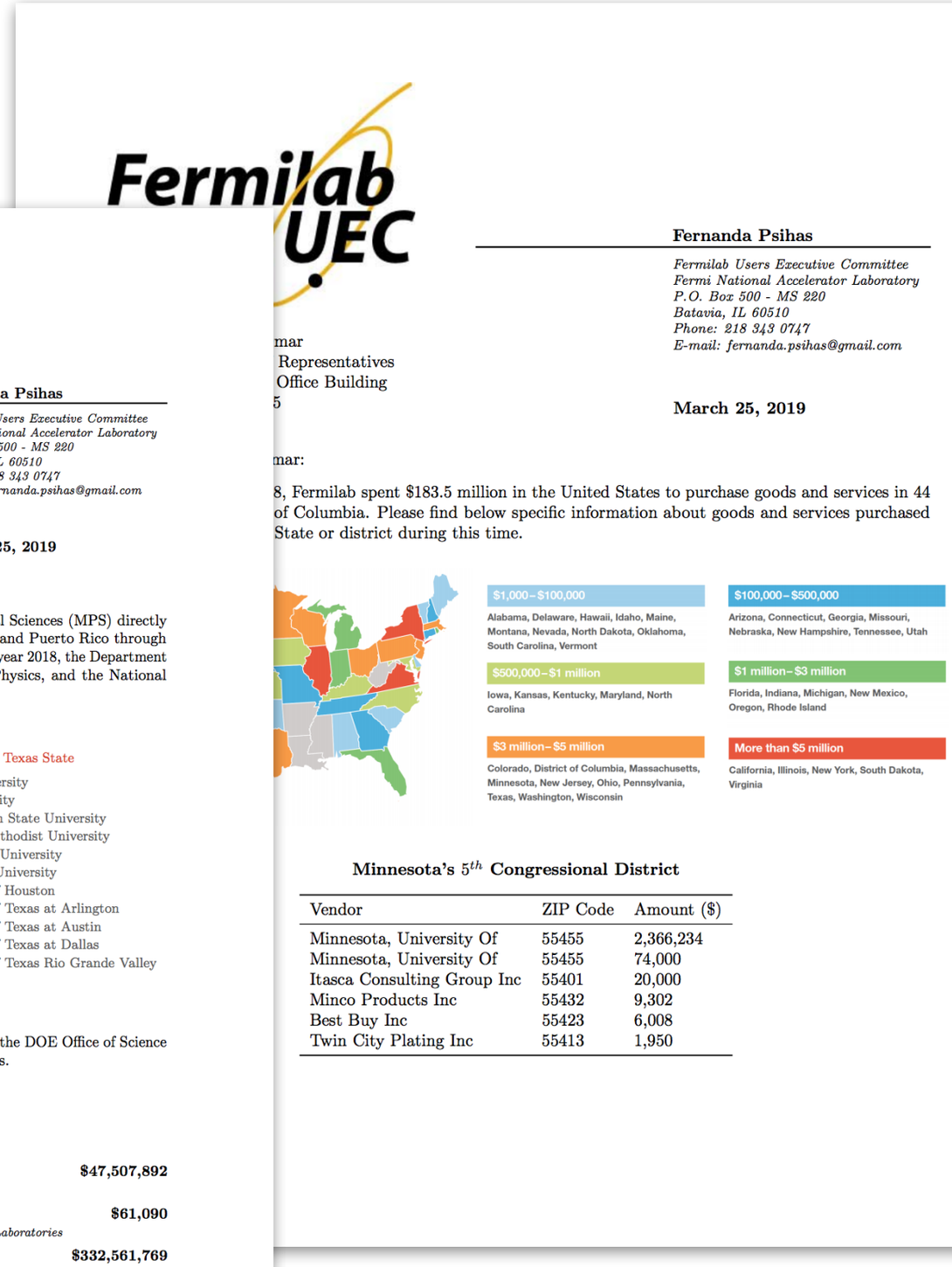
- Baylor University
- Rice University
- Sam Houston State University
- Southern Methodist University
- Texas A&M University
- Texas Tech University
- University of Houston
- University of Texas at Arlington
- University of Texas at Austin
- University of Texas at Dallas
- University of Texas Rio Grande Valley

Please find below specific information about grants and contracts that were awarded by the DOE Office of Science and NSF to institutions and businesses in your State during FY18 and preceding years.

Texas State

In the past 6 years, this district has been awarded:

- DOE Office of Science HEP research grants totaling: **$47,507,892**
  Grants to researchers in your State from the DOE Office of High Energy Physics
- DOE Office of Science contracts totaling: **$61,090**
  Contracts with companies in your State, primarily related to the operation of DOE National Laboratories
- NSF MPS research grants totaling: **$332,561,769**
  Grants to researchers in your State from the NSF Directorate for Mathematical and Physical Sciences



Fermilab UEC

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mar
Representatives
Office Building
5

March 25, 2019

mar:

8, Fermilab spent $183.5 million in the United States to purchase goods and services in 44 of Columbia. Please find below specific information about goods and services purchased State or district during this time.

Minnesota's 5^{th} Congressional District

Vendor	ZIP Code	Amount ($)
Minnesota, University Of	55455	2,366,234
Minnesota, University Of	55455	74,000
Itasca Consulting Group Inc	55401	20,000
Minco Products Inc	55432	9,302
Best Buy Inc	55423	6,008
Twin City Plating Inc	55413	1,950

*See Justin's talk

2020: A VIRTUAL "TRIP"

- We decided **not to travel** to DC this year out of an abundance of caution due to COVID-19
  - Trip was scheduled for March 17-19
  - Decision was made not to travel on March 9th and all attendees did an excellent job in pivoting to **virtual meetings**
- Meetings were assigned in the same way as previous years
  - We requested meetings via **phone call or zoom**
  - **Emailed packet materials** ahead of our meetings
- Found in general that offices were happy to switch to phone meetings → despite exceptional circumstances, most offices were able to make time to talk with us

***From Kirsty Duffy's HEPAP Report**

SCIENCE COMMUNICATIONS TRAINING

- Science communications training for all trip participants helps us deliver our message clearly
  - Congressional process, meeting etiquette
  - Communication strategies and best practices
  - Identifying the clear benefits to society of fundamental research
  - Forming and providing a clear and concise message to the public

B. Quinn, G. Davies

- Virtual meetings posed a new challenge:
  - Most years, new trip participants get the chance to observe some meetings (as "secondary") before leading one — not as easy to do virtually
  - Instead, a number of seasoned trip participants recorded meeting "role plays" so newer attendees can see how a meeting goes in advance

H. White, S. Sword-Fehlberg, A. Perloff

***From Kirsty Duffy's HEPAP Report**

WHO WERE WE?

Organizers:
Kirsty Duffy, Ketino Kaadze (UEC)
Harvey Newman, Kevin Black (US LUA)
Kelly Stifter, Ryan Linehan (SLUO)

Trip logistics (WHIPS):
Justin Vasel, Fernanda Psihas (UEC)

Meeting Planning:
Breese Quinn (Congressional committee scheduling)
Harvey Newman (Executive office scheduling)

Institutional Support:
University Research Association

67 "trip" participants

Kirsty Duffy
Ketino Kaadze
Saptaparna Bhattacharya
Josh Isaacson
David Martinez
Cindy Joe
Ashley Back
Jonathan Asaadi
Yuanyuan Zhang
Isobel Ojalvo
Reddy Gandrajula
Luke Pickering
Richie Diurba
Abhilash Yallappa
Dombara
Maria Martinez-Casales
Mike Wallbank
Joseph Zennamo
Louise Suter
Mateus Carneiro
Breese Quinn
Fernanda Psihas
Justin Vasel
Sam McDermott
Rob Fine
Anne Norrick
Herman White
Jim Hirschauer
Andrew Whitbeck
Karri De Petrillo
Amber Johnson
Wes Ketchum
Bryan Ramson
Ciaran Hughes
Xuan Chen
Alexx Perloff
Scarlet Norberg
Micah Groh
Matt Solt
Rachel Mannino
Jannicke Pearkes
Cameron Bravo
Ryan Linehan
Kelly Stifter
Jorge Diaz-Cruz
Ari Cukierman
Maris Arthurs
Eli Rykoff
Kevin Black
Harvey Newman
Yuri Gerstein
Zeynep Demiragli
Sarah Demers
Emma Castiglia
Mariel Pettee
Gianantonio Pezzullo
Austin Baty
Matthew Feickert
Fernando Flor
Dylan Frizzell
Aaron Dominguez
Sergei Gleyzer
Marcellus Parker
Justin Williams
Suzanne Rosenzweig
Joe Haley
Rachel Bartek
Sarah Eno

***From Kirsty Duffy's HEPAP Report**

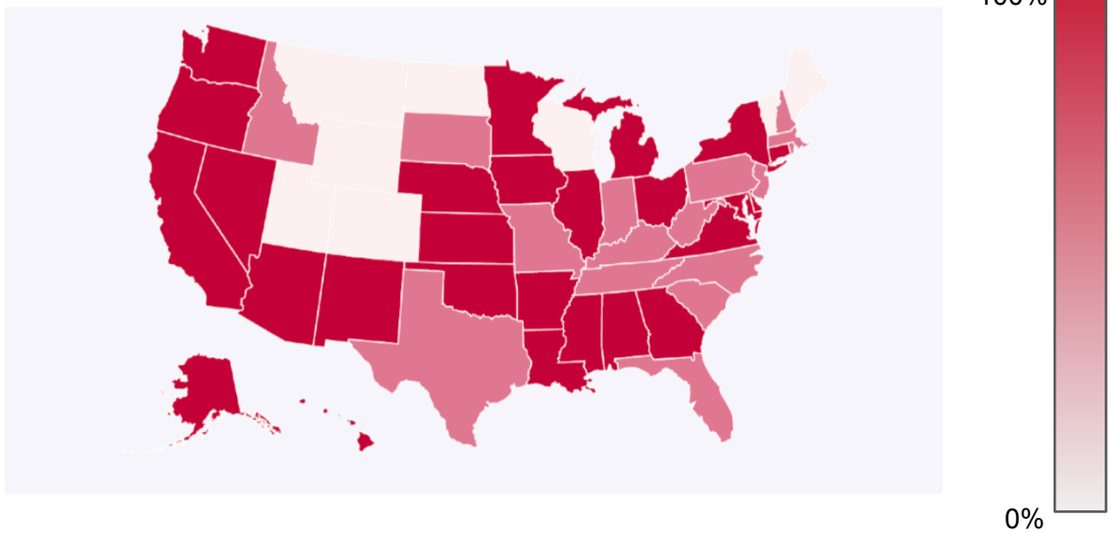
March 2020: Performance

- Despite the hurdles introduced by COVID, we met remotely with >60% of all congressional offices.

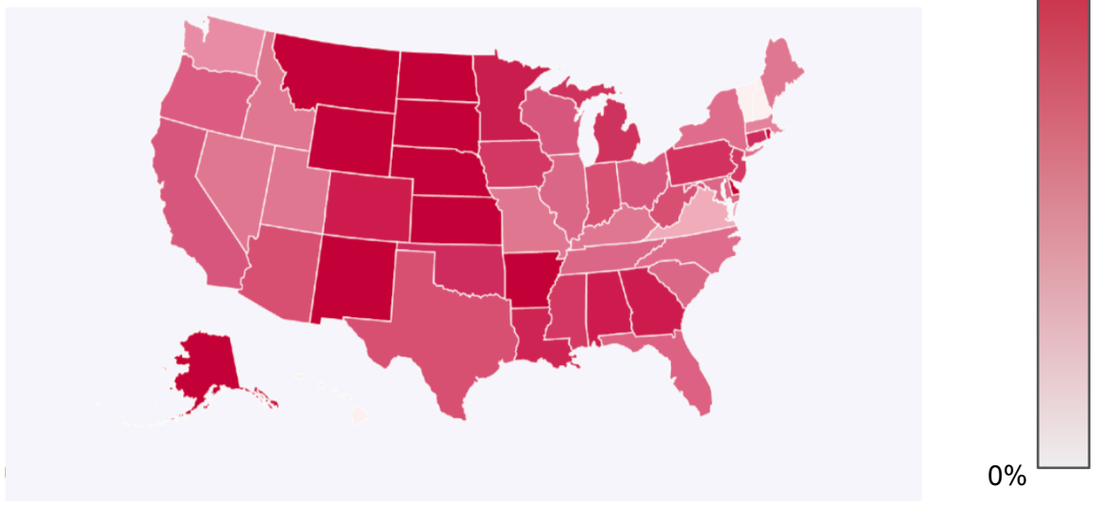
- We found meetings to be more difficult to schedule, but got great shows of support across the board.

- **Maintaining our relationships** with congressional offices continues to be a priority and an asset to these trips.

Message delivered to 68/100 Senate offices



Message delivered to 283/439 House offices (64.5%)



We delivered our message to 351 congressional offices.

Following-up

Maintaining relationships with the congressional offices is a year-round task, and is crucial to keeping the HEP message relevant throughout the appropriations process.

In addition to following up with congressional offices on current developments, the community addresses appropriations subcommittee chairs directly with our requests.

APS physics DIVISION OF PARTICLES & FIELDS · Fermilab UEC · US LHC Users Association · SLUO SLAC USERS ORGANIZATION

April 5, 2019

Chairwoman Marcy Kaptur
Subcommittee on Energy and Water Development
Committee on Appropriations
2186 Rayburn House Office Building
Washington, D.C. 20515

Ranking Member Mike Simpson
Subcommittee on Energy and Water Development
Committee on Appropriations
2084 Rayburn House Office Building
Washington, D.C. 20515

Dear Chairwoman Kaptur and Ranking Member Simpson:

We are writing on behalf of the U.S. community of approximately 6,000 scientists, engineers and students from 180 universities, laboratories and institutes that conduct research in high energy physics. We greatly appreciate your support for the High Energy Physics (HEP) program in the

[…]

Robust funding, at the $1.045 billion level, is necessary to build on recent progress and the sustained, unified, groundbreaking efforts of our nation's high energy physics community. We are grateful for your continued leadership in funding this important field of discovery science that contributes to the pre-eminence of our nation and our quality of life.

Professor Priscilla Cushman
Chair, Division of Particles and Fields of the American Physical Society
Professor of Physics
School of Physics and Astronomy
University of Minnesota
Minneapolis, MN 55455

Dr. Gavin Davies
Chair, Fermilab Users Executive Committee
Department of Physics
Swain Hall West
Indiana University
727 E. Third St.
Bloomington, IN 47405-7105

Professor Harvey B Newman
Marvin L. Goldberger Professor of Physics
Chair US LHC Users Executive Committee
Charles C. Lauritsen Laboratory of High Energy Physics
Division of Physics, Mathematics and Astronomy
California Institute of Technology
1200 East California Boulevard
Pasadena, CA 91125

Dr. Nicola Omodei
Chair SLAC Users Organization Executive Committee
Hansen Experimental Physics Laboratory and
Kavli Institute for Particle Astrophysics and Cosmology
Stanford University
Stanford, CA 94035

"DEAR COLLEAGUE" LETTERS

- During our meetings, we ask all offices to consider signing on to "Dear Colleague" letters sponsored by HEP supporters in Congress

- The number of signatories is also a source of feedback regarding the support of Congress to HEP through the DOE Office of Science and the NSF

- Despite the challenging circumstances of our trip, three of the four letters received more signatures this year than for FY20

FY21 Senate DOE Office of Science Letter

United States Senate
WASHINGTON, DC 20510

March 30, 2020

31 signatures
30 for FY20

Senator Lamar Alexander
Chairman
Subcommittee on Energy and Water Development
Senate Committee on Appropriations
142 Dirksen Senate Office Building
Washington, DC 20510

Dear Chairman Alexander and Ranking Mem

As you begin work on the Fiscal Year
write to express our strong support for robust
Energy (DOE) Office of Science and request

For more than forty years, research pe

FY21 House DOE Office of Science Letter

Congress of the United States
Washington, DC 20515

March 17, 2020

142 signatures
160 for FY20

The Honorable Marcy Kaptur
Chairwoman
Energy and Water Development
House Appropriations Committee
H-305, U.S. Capitol
Washington, DC 20515

The Honorable Mike Simpson
Ranking Member
Energy and Water Development
House Appropriations Committee
1016 Longworth House Office Building
Washington, DC 20515

Dear Chairwoman Kaptur and Ranking Member Simpson:

ter Appropriations bill, we write to
for the Department of Energy (DOE)

we must set priorities and make
that scientific research is the
overcome many of our greatest
reign energy to curing diseases and
elieve funding for the DOE Office of

FY21 Senate NSF Letter

United States Senate
WASHINGTON, DC 20510

March 30, 2020

40 signatures
37 for FY20

Senator Lamar Alexander
Chairman
Subcommittee on Energy and Water Development
Senate Committee on Appro
142 Dirksen Senate Office B
Washington, DC 20510

Senator Dianne Feinstein
Ranking Member
Subcommittee on Energy and Water

Dear Chairman Alexander a

As you begin work o
write to express our strong s
Energy (DOE) Office of Scie

For more than forty y
foundation for scientific and
in the physical sciences. The
solutions to overcome many
ending our dependence on fo
national security. Funding f

FY21 House NSF Letter

Congress of the United States
Washington, DC 20515

March 13, 2020

177 signatures
173 for FY20

The Honorable Jose Serrano
Chairman
Subcommittee on Commerce, Justice, Science, and Related Agencies
H-307, The Capitol
Washington, D.C. 20515

The Honorable Robert Aderholt
Ranking Member
Subcommittee on Commerce, Justice, Science, and Related Agencies
1016 Longworth House Office Building
Washington, D.C. 20515

Dear Chairman Serrano and Ranking Member Aderholt:

We write to respectfully request that the National Science Foundation (NSF) receive an appropriation of at least **$9 billion** in the Fiscal Year (FY) 2021 Commerce, Justice, Science, and Related Agencies Appropriations bill.

Now in its 70th year, the NSF is an independent federal agency created by Congress to promote the progress of science, secure the national defense, and to advance the nation's health, prosperity, and welfare. The scientific research and educational programs supported by NSF are

***From Kirsty Duffy's HEPAP Report**

Previous Organizer's Input on Improvements for 2021

Support from the community is critical for this effort.

100% scheduled meetings is attainable with the current infrastructure (assuming 2019 funding levels & WHIPS).

I expect largest improvements to come from choosing and training our team of trip attendees carefully.

Introducing Surveys and more performance metrics is key to maintaining community support for this effort.

This trip is a unique opportunity to carry our message to Congress. **Much greater focus is needed on developing this materials and strengthening our priority messages.**

The Fermilab UEC plays a big role in developing the materials for the trip. **Strongly supporting changes that address feedback from Congress is a priority.**

$F\Psi$