



U.S. DEPARTMENT OF
ENERGY

Office of
Science

High Energy Physics Program Status

HEPAP Meeting
May 30, 2019

Jim Siegrist
Associate Director for High Energy Physics
Office of Science, U.S. Department of Energy

Director of DOE Office of Science



- ▶ Chris Fall Confirmed as Director of DOE Office of Science on May 23, 2019
 - ▶ Previously served as Principal Deputy Director of Advanced Research Projects Agency–Energy (ARPA-E)
 - ▶ Also served in White House Office of Science and Technology (OSTP) and in the Office of Naval Research, including as acting chief scientist



DOE Office of Science Statements on Diversity, Equity, and Inclusion

- ▶ The DOE Office of Science (SC) is fully committed to fostering safe, diverse, equitable, and inclusive work, research, and funding environments that value mutual respect and personal integrity.
 - ▶ Effective stewardship and promotion of diverse and inclusive workplaces that value and celebrate a diversity of people, ideas, cultures, and educational backgrounds is foundational to delivering on the SC mission. The scientific community engaged in SC-sponsored activities is expected to be respectful, ethical, and professional.
 - ▶ <https://www.energy.gov/science/diversity-equity-inclusion>
- ▶ Office of Science Statement of Commitment
 - ▶ The DOE Office of Science (SC) is fully and unconditionally committed to fostering safe, diverse, equitable, and inclusive work, research, and funding environments that value mutual respect and personal integrity.
 - ▶ <https://science.osti.gov/sc-2/Research-and-Conduct-Policies/Diversity-Equity-and-Inclusion/SC-Statement-of-Commitment>
- ▶ Office of Science Statement on Harassment
 - ▶ Harassment of any kind, including sexual and non-sexual harassment, bullying, intimidation, violence, threats of violence, retaliation, or other disruptive behavior is not tolerated in the federal workplace, including Department of Energy (DOE) site offices, or at DOE national laboratories, scientific user facilities, academic institutions, other institutions receiving Office of Science funding, or at locations where activities are funded by the DOE Office of Science.
 - ▶ <https://science.osti.gov/sc-2/Research-and-Conduct-Policies/Diversity-Equity-and-Inclusion/Harassment>

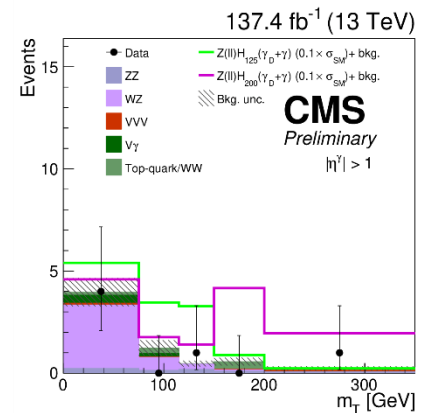
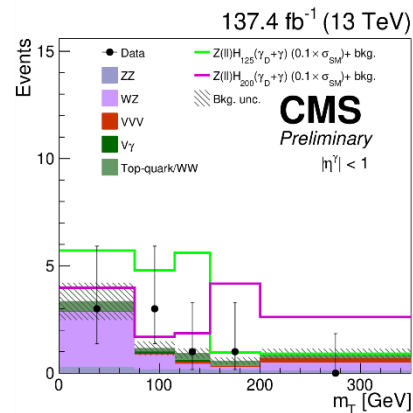
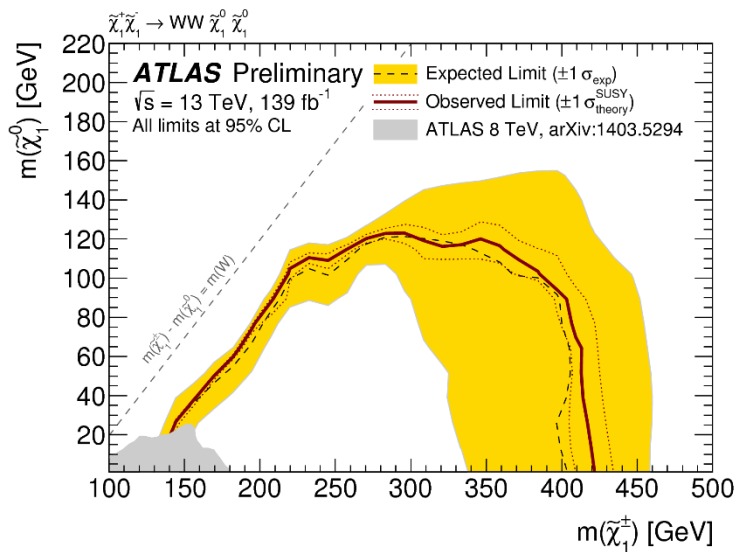
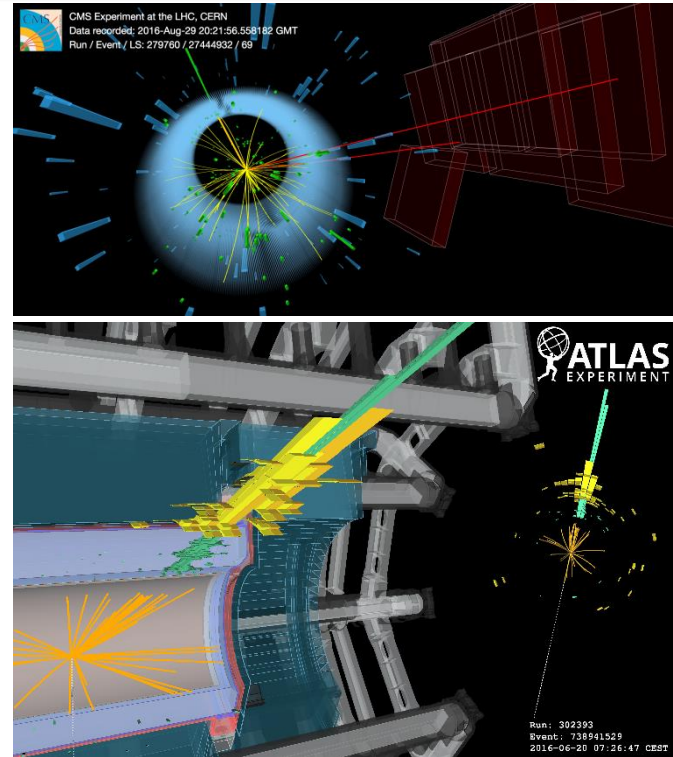


Program Highlights



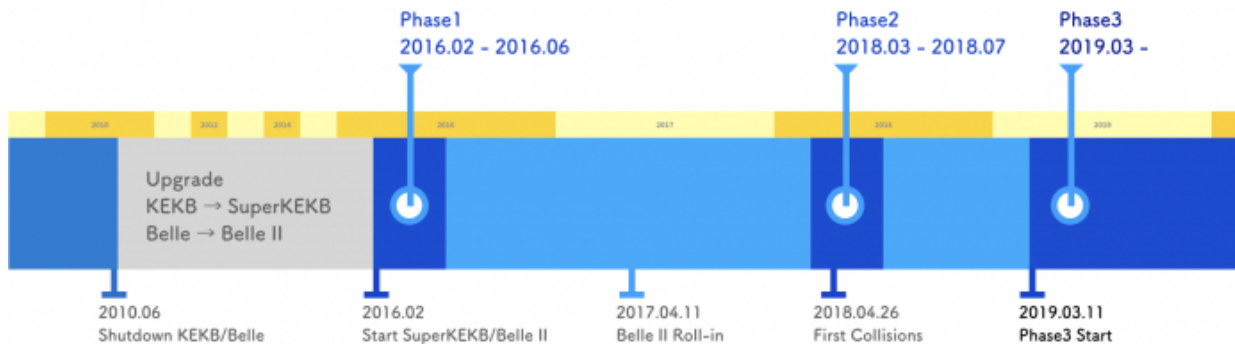
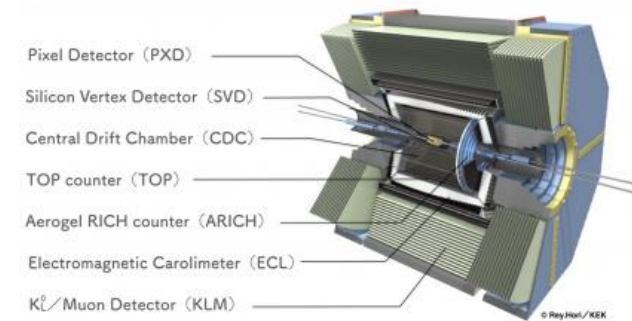
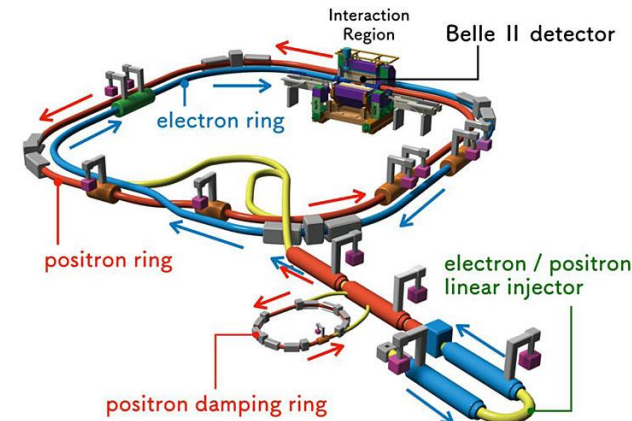
Dark Matter Searches at the LHC

- ▶ LHC Experiments continue to set constraints on dark matter while using Higgs as a tool for discovery
- ▶ New ATLAS results set constraints on supersymmetric dark matter candidates
 - ▶ Bottom squark pairs to states with Higgs bosons, b-jets, missing transverse energy [[ATLAS-CONF-2019-011](#)]
 - ▶ Charginos and sleptons to two leptons and missing transverse momentum [[ATLAS-CONF-2019-008](#)]
- ▶ CMS explores Higgs boson as "messenger" between the standard model particles and dark matter
 - ▶ Higgs decays to photon and massless "dark photon"
 - ▶ <https://cms.cern/news/no-sign-dark-light-higgs-boson>



SuperKEKB Phase 3 Operations

- ▶ SuperKEKB began Phase 3 operations successfully on March 11, 2019
- ▶ This will begin the physics run for the Belle II experiment, which will start taking data with a fully instrumented detector
- ▶ SuperKEKB aims to provide 40 times the luminosity of KEKB to enable Belle II to search for new physics in rare particle decays



Proton Improvement Plan II (PIP-II)

- ▶ PIP-II Groundbreaking held on March 15, 2019
 - ▶ Attended by many stakeholders from U.S. and international partners contributing to PIP-II
- ▶ P5 report recommended that PIP-II proceed immediately in order to provide increased proton beam intensity (of > 1 megawatt) for LBNF
 - ▶ Replace the existing 50 year old linear accelerator with a higher power; one powered by superconducting radiofrequency cavities
 - ▶ Supports longer-term physics research goals by providing increased beam power and high reliability for future experiments at Fermilab, including LBNF/DUNE



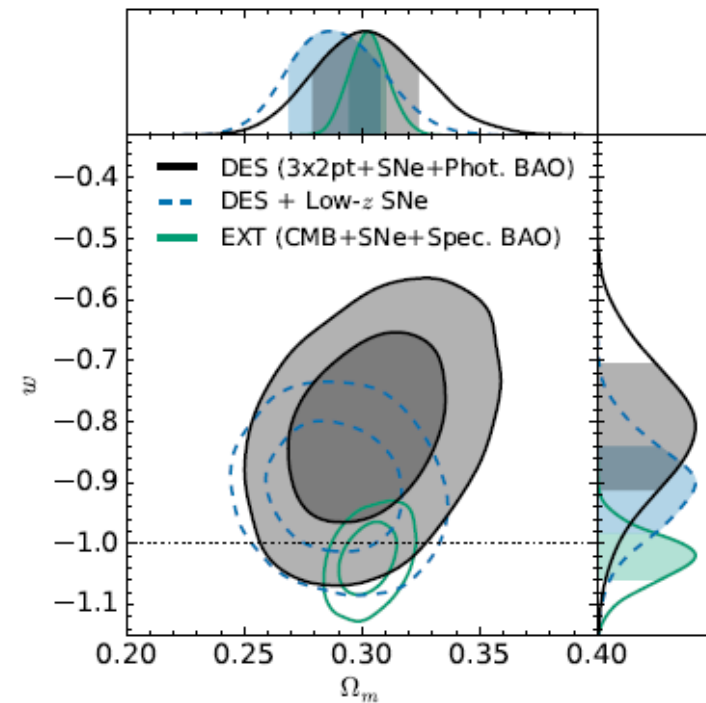
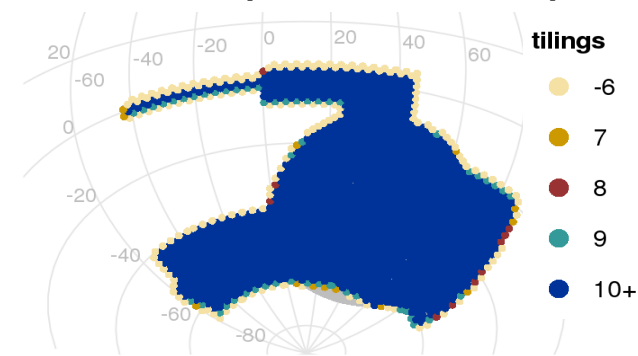
From left: Senator Tammy Duckworth (IL), Senator Dick Durbin (IL), Rep. Sean Casten (IL-6), Rep. Robin Kelly (IL-2), Rep. Bill Foster (IL-11), Fermilab Director Nigel Lockyer, Rep. Lauren Underwood (IL-14), Illinois Governor JB Pritzker, DOE Under Secretary for Science Paul Dabbar, Fermilab PIP-II Project Director Lia Meringa, DOE Associate Director for High Energy Physics Jim Siegrist, University of Chicago President Robert Zimmer, Consul General of India Neeta Bhushan, British Consul General John Saville, Consul General of Italy Giuseppe Finocchiaro, Consul General of France Guillaume Lacroix, DOE Fermi Site Office Manager Mike Weis, DOE PIP-II Federal Project Director Adam Bihary and Consul General of Poland Piotr Janicki. Photo: Reidar Hahn



Dark Energy Survey

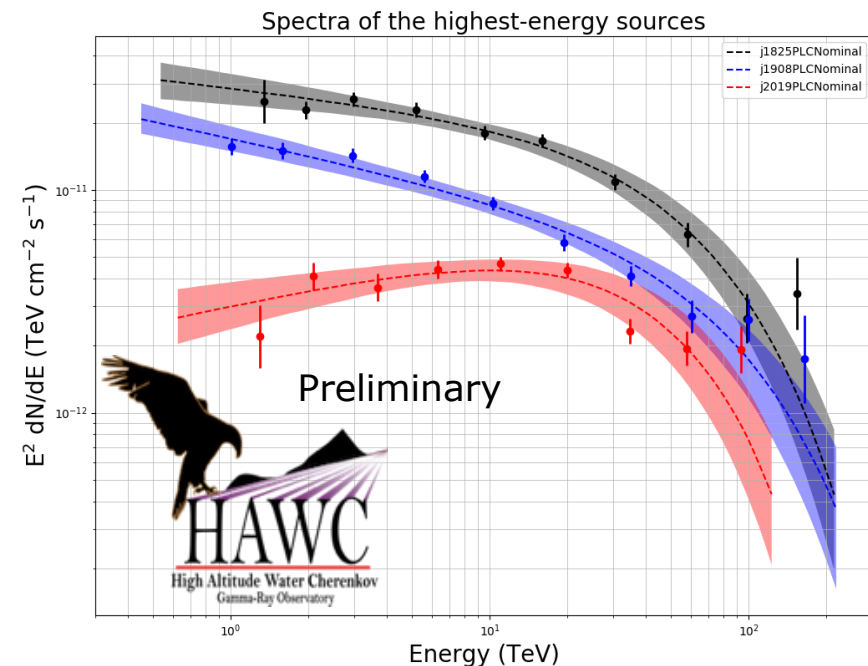
- ▶ **DOE-HEP partnership with NSF-AST**
- ▶ Completed Observations Jan 9, 2019
 - ▶ Year Six included observations and processing of “Deep Fields” to 10x DES wide-field depth
 - ▶ Will reduce weak lensing systematics through improved calibration of photometric redshift and characterization of blending of neighboring galaxies in DES wide-field data
- ▶ Many cosmology results, including:
 - ▶ Combined analysis of DES-Y3 supernovae (SNe), DES-Y1 photometric baryonic acoustic oscillation (BAO), and DES-Y1 weak lensing + galaxy clustering (3x2pt) **detects Dark Energy at 4σ from DES alone**
 - ▶ T. Abbott et al. 2019 (PRL)
 - ▶ Now concentrating on cosmology through Y3 and on producing Y6 data products for analysis; Y6 cosmology to follow

z-band (850-1002 nm)



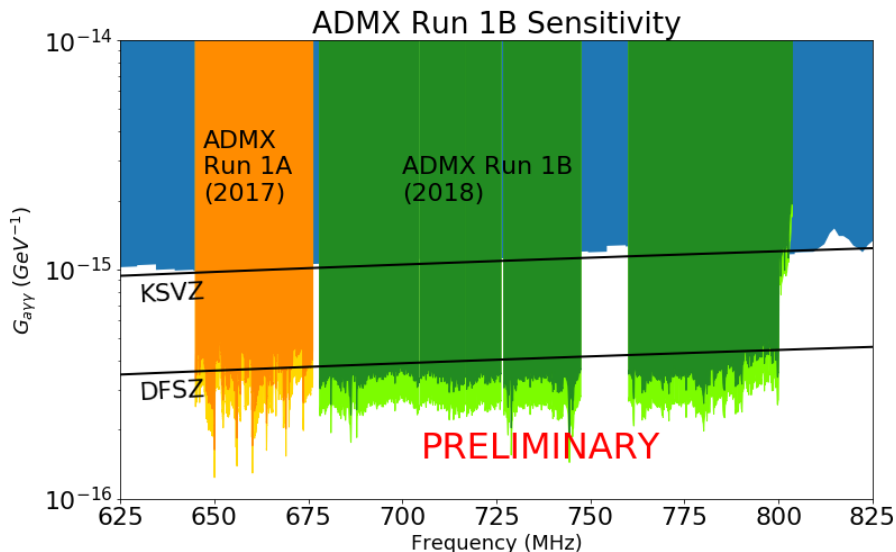
High Altitude Water Cherenkov (HAWC) Experiment

- ▶ HAWC gamma/cosmic-ray observatory located on the Sierra Negra mountain in Mexico
 - ▶ 5 year ops. started early 2015
 - ▶ Partnership with NSF
- ▶ New result: Testing Lorentz Invariance with Highest Energy gamma rays
 - ▶ If Lorentz Invariance is violated, then g-rays can decay into e^+e^- pairs
 - ▶ HAWC's proof of the existence of gamma-rays >100 TeV provides more than an order of magnitude better constraints on superluminal Lorentz Invariance

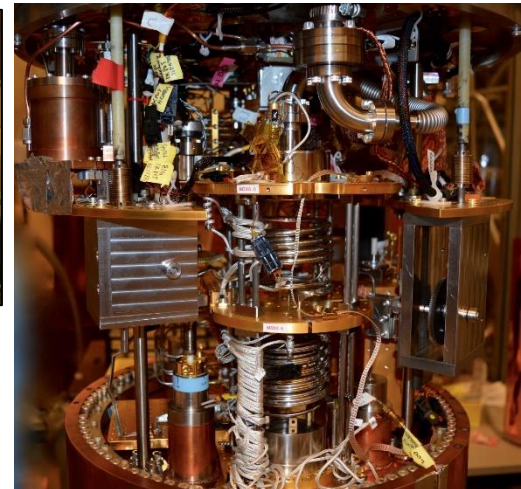


ADMX-G2

- ▶ Axion Dark-Matter eXperiment Generation 2
 - ▶ Located at University of Washington, managed by Fermilab
 - ▶ Primarily DOE supported with contributions from the UK, Germany and Australia; R&D support from the Heising-Simons Foundation
- ▶ Uses a strong magnetic field and resonant cavity to convert dark matter axions into detectable microwave photons
 - ▶ Operations approved to cover range 0.5 to 2 GHz (~ 2 to 8 micro-eV mass) – started Aug. 2016; planned to complete \sim Jan. 2022
 - ▶ **Run 1A** (2017) & **Run 1B** (2018) – both reached “invisible” axion (DFSZ model) sensitivity!
 - ▶ Run 1C starting soon



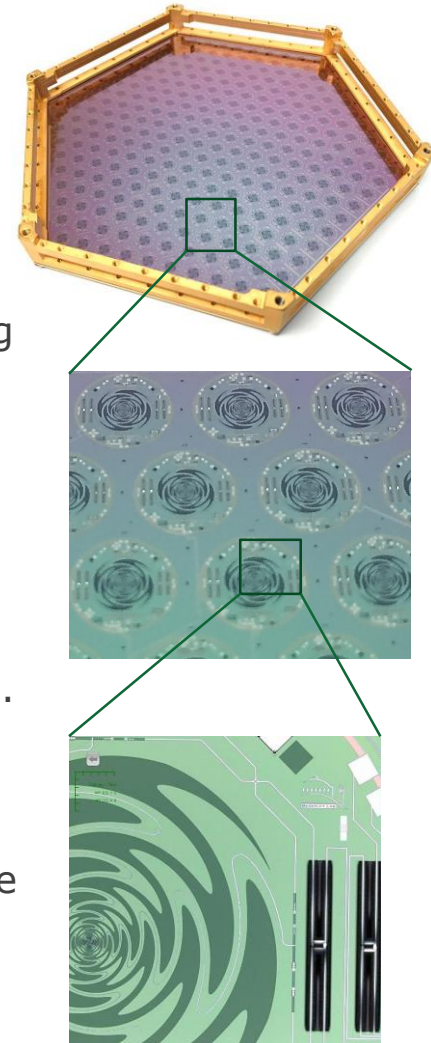
[Right] ADMX experiment insert showing the RF cavity (bottom), dilution refrigerator (above cavity), and frequency-tuning mechanism (left).



See recent article in National Geographic:
<https://www.nationalgeographic.com/science/2018/10/news-admx-dark-matter-detector-physics/>

CMB-S4 Project and Collaboration

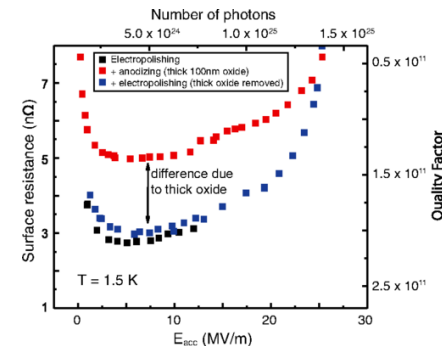
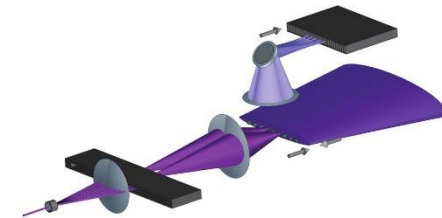
- ▶ CMB-S4 collaboration progress
 - ▶ Focusing on July submission(s) to NRC decadal survey
 - ▶ Continuing work on science, design, and project development
- ▶ CMB-S4 project continuing preparation
 - ▶ Integrated Project Office (IPO) set up under Jim Yeck
 - ▶ Detector fabrication & readout issues at the forefront of R&D/planning
- ▶ Interagency (NSF-DOE) coordination group meeting bi-weekly to share information, monitor, and review.
- ▶ At DOE:
 - ▶ CD0 (almost) signed; waiting for ESAAB to be scheduled; aiming for mid-June.
 - ▶ HEP working with IPO to fund near term R&D for planning and design.
- ▶ At NSF:
 - ▶ MSRI design and project proposal now under review at NSF
 - ▶ Requirements for NSF MREFC process under review, relevant to future CMB-S4 entry.



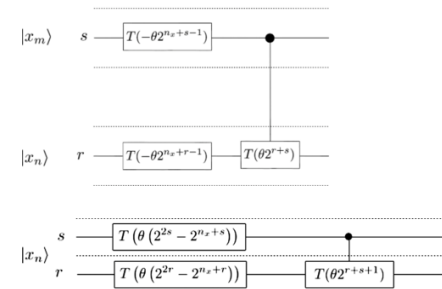
HEP-QIS Research Program Updates

Quantum Information Science Enabled Discovery (QuantISED) for High Energy Physics Highlights

- ▶ Cosmos and Qubits
 - ▶ “Verified quantum information scrambling”
 - ▶ <https://www.nature.com/articles/s41586-019-0952-6>
- ▶ Research Technology for QIST
 - ▶ “Understanding Quality Factor Degradation in Superconducting Niobium Cavities at Low Microwave Field Amplitudes”
 - ▶ [Phys. Rev. Lett. 119, 264801](#)
- ▶ Quantum Computing for HEP:
 - ▶ “Electron-Phonon Systems on a Universal Quantum Computer”
 - ▶ [Phys. Rev. Lett. 121, 110504, 2018](#)
 - ▶ “Digital quantum computation of fermion-boson interacting systems”
 - ▶ [Phys. Rev. A 98, 042312, 2018](#)



$$|x_m\rangle|x_n\rangle \rightarrow e^{i2^{2n}x-2\theta} e^{-i(x_m-2^{2n}x-1)\theta} e^{-i(x_n-2^{2n}x-1)\theta} |x_m\rangle|x_n\rangle$$



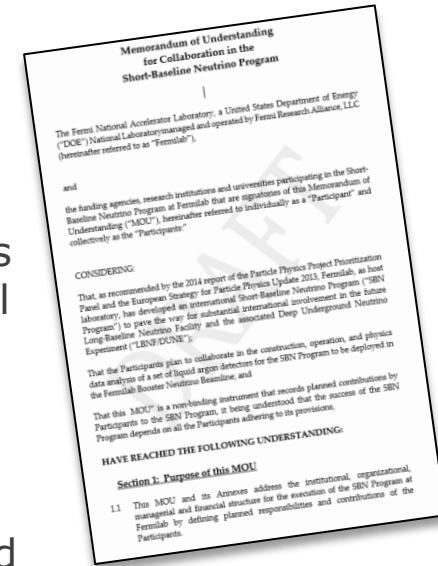
DOE/SC QIS PI Meeting

- ▶ Held January 31 to February 1, 2019
 - ▶ 267 attendees with PIs, observers from all SC programs, and observers from other Federal Agencies
- ▶ Plenary speakers included:
 - ▶ Jake Taylor, OSTP; John Preskill, Caltech; Irfan Siddiqi, LBNL; and David Awschalom, ANL/U Chicago
- ▶ Topical Breakout Discussion Sessions:
 - ▶ Quantum computing for application-specific research: machine learning, data analysis, and related topics
 - ▶ Foundational quantum physics and information theory
 - ▶ Quantum qubits and computing platforms
 - ▶ Advanced synthesis and characterization tools (including validation)
 - ▶ Computer science and applied math challenges for quantum computing
 - ▶ Quantum sensors and detectors
 - ▶ Quantum computing for application-specific research: chemistry, materials, variational techniques, field theories
 - ▶ Analog simulations and quantum simulation experiments
- ▶ SC Program Office Breakout Discussions
- ▶ Lightning round of Quantum Center Pitches



HEP International Agreements Program

- ▶ Written arrangements planned for U.S.-hosted international neutrino program
 - ▶ MOUs for SBN and DUNE experimental programs & Projecting Planning Documents (“MOUs”) are planned to be established for LBNF and PIP-II facilities
 - ▶ For DUNE, LBNF, and PIP-II, such documents allow the projects to adhere to DOE O 413.3b by providing details of international partners’ scope of contributions, associated management and organizational processes, and definition of responsibilities
 - ▶ Includes list of component deliverables planned from partners, milestones, schedules, ... to enable completion of the projects
 - ▶ Such MOUs are planned between Fermilab, host laboratory, and multi-institutional/agencies that are participating in the neutrino programs
 - ▶ Largely analogous to the MOUs established by CERN for the LHC program
 - ▶ Goal to establish in-time of CD-2 (baselining) or CD-3 (start of construction)
- ▶ MOU Working Group formed to enable a streamlined approach and help expedite necessary reviews and approvals within DOE
 - ▶ Includes representatives from DOE Office of General Counsel, DOE Chicago Legal Counsel office, Fermilab Site Office, SC and HEP International Programs
 - ▶ Chaired by Abid Patwa (HEP International Programs)
 - ▶ WG currently deliberating on a draft SBN program MOU, which will serve as a model for subsequent DUNE MOUs and LBNF/PIP-II project planning documents



Recent International Cooperative Engagements



Japan

Response letter sent by DOE Under Secretary for Science in early-March 2019 to Diet Representative Kawamura expressing support for ILC should Japan decide to host the project, and invite discussions for Japanese collaborative engagement in the U.S.-hosted international neutrino program.



Germany

Letter sent by DOE Under Secretary for Science in Feb 2019 to BMBF State Secretary welcoming discussions for collaborative opportunities in the U.S.-hosted international neutrino program.

Response letter received in April indicating interest by Germany to discuss further.



Poland

Letter sent by DOE Under Secretary for Science in March 2019 to Minister of Science in Poland welcoming collaborative opportunities in the U.S.-hosted international neutrino program and PIP-II accelerator project.

Poland's Wrocław University of S&T expressing interest to participate in the collaborative program.



India

Request by HEP for DOE Under Secretary for Science to meet with Indian Ambassador at Embassy of India in D.C. to discuss U.S.-India partnerships; Invitation sent in May 2019 by DOE Under Secretary to India DST Secretary to visit DOE.

Meeting scheduled for June with Indian Ambassador; Response letter received from DST expressing interest to meet.



CERN

In April 2019, completed negotiations and signed a Future Circular Collider (FCC) Addendum ["MOU"] between Fermilab and CERN on high-field quadrupole magnet R&D studies for FCC design configurations.



Spain

Letter sent by DOE Under Secretary for Science in March 2019 to Minister of Science in Spain welcoming discussions for collaborative opportunities in the U.S.-hosted international neutrino program and PIP-II project.

Response letter received in May indicating interest by Spain in the program.



Peru

Letter sent in April 2019 by DOE Associate Director of Science for HEP to President CONCYTEC welcoming collaborative opportunities in, and pursuing written arrangements for, neutrino physics.

Response letter received in May expressing Peru's interest and to send DOE a draft written arrangement in summer of 2019.



Israel

Ongoing coordination with U.S. State Department to pursue establishing U.S.-Israel Science & Technology Cooperation Agreement, and, in the interim, an international Cooperative R&D Agreement between Fermilab and Tel-Aviv University in neutrino science cooperation.

HEP Budget



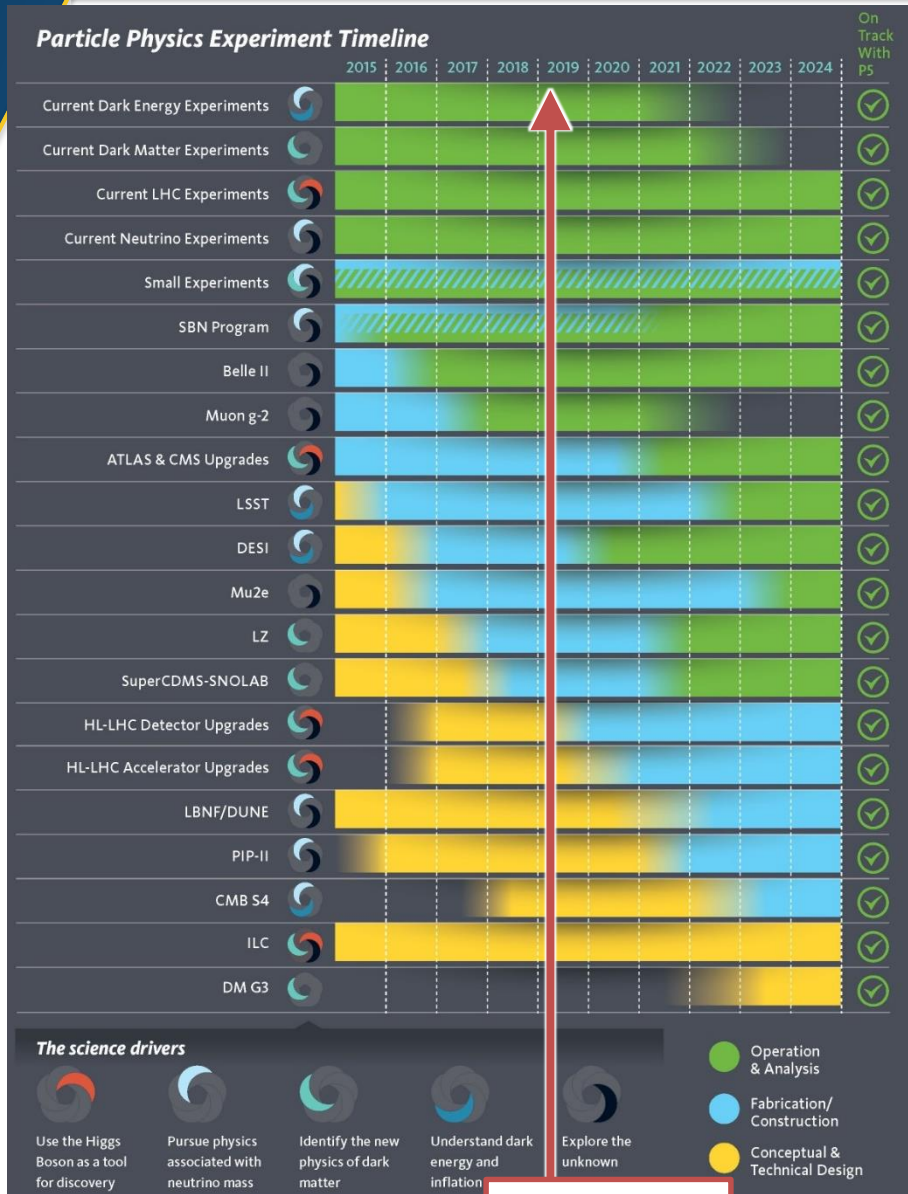
FY 2020 HEP Budget Request

HEP Funding Category (\$ in K)	FY 2018 Actual	FY 2019 Enacted	FY 2020 Request	FY 2020 vs. FY 2019
Research	359,177	380,847	301,357	-79,490
Facilities/Operations	270,488	260,803	239,746	-21,057
Projects	278,335	338,350	226,935	-111,415
Total	908,000	980,000	768,038	-211,962

- ▶ FY 2020 Request supports balanced program of world-leading research, facilities and projects
 - ▶ Continue U.S. leadership in experiments at the LHC, muon and neutrino experiments at Fermilab, dark matter and dark energy experiments, and vibrant theoretical research program
 - ▶ QIS to accelerate discovery, and with ASCR and BES, support at least one QIS Center
 - ▶ Artificial Intelligence (AI)-Machine Learning (ML) research to tackle challenges across HEP
 - ▶ Cosmic Microwave Background Stage 4 (CMB-S4) R&D to develop large-scale project
- ▶ FY 2020 HEP Budget continues support for P5-guided investments
 - ▶ Research support advances P5 science drivers and world-leading, long-term R&D in Advanced Technology, Accelerator Stewardship, and Quantum Information Science
 - ▶ “Building for Discovery” by supporting HL-LHC, LBNF/DUNE, and PIP-II
 - ▶ Operations support enables research at HEP User Facilities and science ops. of P5 experiments



P5 Implementation Status – FY 2019

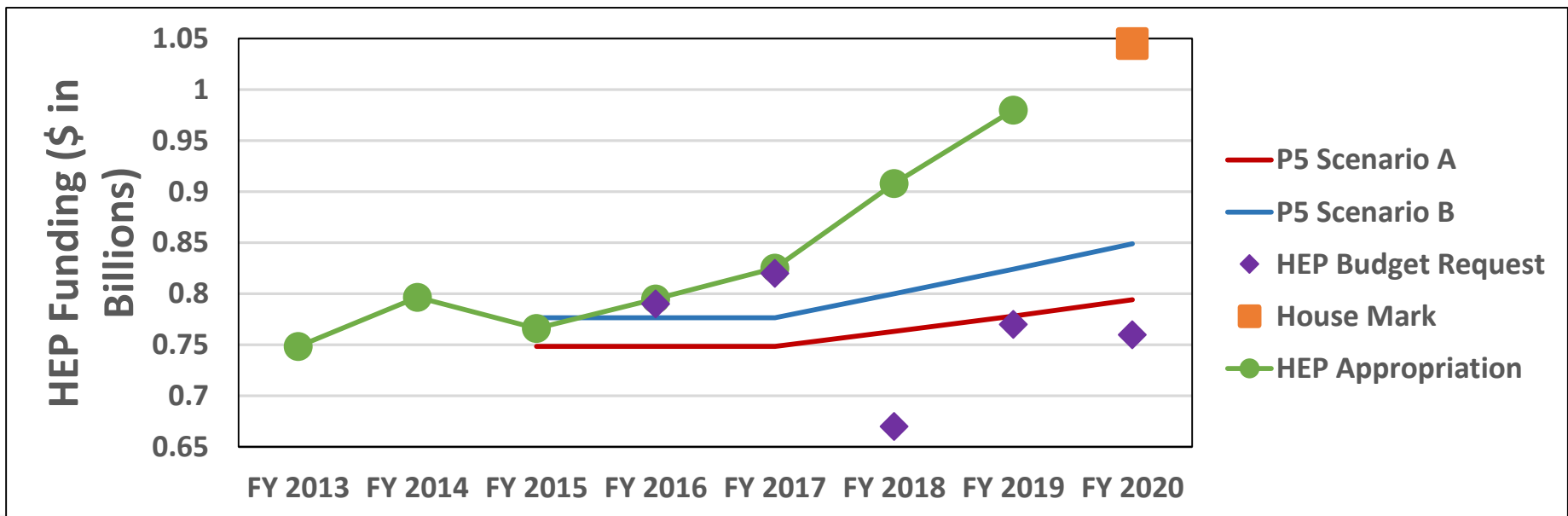


All projects on budget & schedule

- ▶ Projects fully funded as of FY19
 - ▶ Muon g-2: 1st beam 2017
 - ▶ LHC detector upgrades: on track for 2019/20 installation
 - ▶ Mu2e : 1st data in 2020
 - ▶ LSST: full science operations 2023
 - ▶ DM-G2 (superCDMS & LZ): 1st data 2020
 - ▶ DESI: 1st light on April 1, 2019
- ▶ HL-LHC accelerator and detector upgrades started on schedule
- ▶ LBNF/DUNE & PIP-II schedules advanced due to strong support by Administration & Congress
- ▶ CMB S4: developing technically-driven schedule to inform agencies, NAS Astro 2020 Decadal Survey
- ▶ DM-G3: R&D limited while fabricating G2
- ▶ ILC: cost reduction R&D while waiting for decision from Japan
- ▶ Broad portfolio of small projects running

U.S. Congress Supports P5 Strategy

- ▶ Congressional appropriations reflect strong support for P5
- ▶ Recent appropriations reports include language recognizing community's efforts:
 - ▶ FY19 Senate EWD: "Four years into executing the P5, the Committee commends the Office of Science and the high energy physics community for achieving significant accomplishments and meeting the milestones and goals set forth in the strategic plan..."



FY 2020 House Marks

▶ DOE Office of Science: **\$6.87B**

- ▶ \$285M above FY19 enacted and \$1.32B above FY20 request
 - ▶ Supports Artificial Intelligence (AI)

▶ High Energy Physics: **\$1.045B**

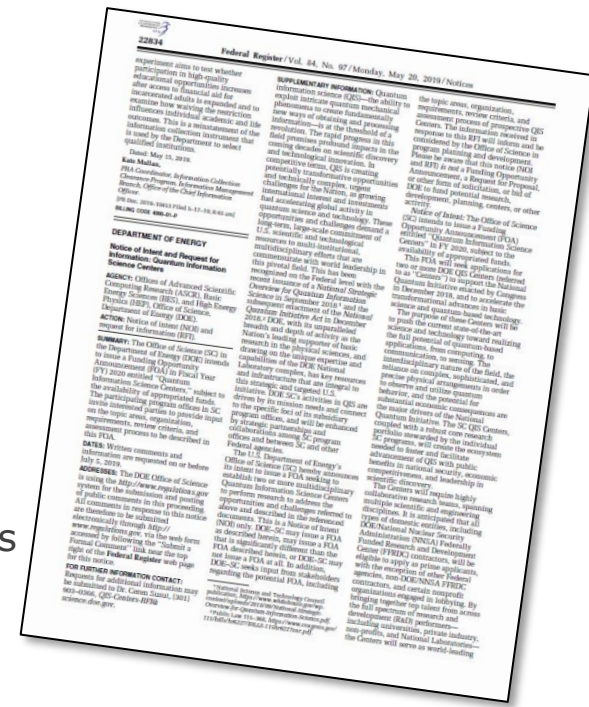
- ▶ [*HEP Core Program*]
—Within available funds, the recommendation provides \$25,000,000 for the Sanford Underground Research Facility, not less than \$50,000,000 for Accelerator R&D, and \$97,975,000 for the HL-LHC Upgrade Projects.

The Committee strongly urges the Department to **maintain a balanced portfolio** of small, medium, and large scale experiments, and to **ensure adequate funding for research** performed at universities and the national laboratories. The Committee encourages the Department to fund facility operations at levels for **optimal operations**.

HEP (\$ in K)	FY19 Enacted	FY20 Request	FY20 House Mark	HM vs Request	HM vs FY19 Enacted		
HEP Core Program	800,000	648,038	814,000	165,962	25.6%	14,000	1.8%
Line Item Construction	180,000	120,000	231,000	111,000	92.5%	51,000	28.3%
<i>PIP-II</i>	<i>20,000</i>	<i>20,000</i>	<i>60,000</i>	<i>40,000</i>	<i>200%</i>	<i>40,000</i>	<i>200%</i>
<i>LBNF/DUNE</i>	<i>130,000</i>	<i>100,000</i>	<i>171,000</i>	<i>71,000</i>	<i>71.0%</i>	<i>41,000</i>	<i>31.5%</i>
<i>Mu2e</i>	<i>30,000</i>	<i>.....</i>	<i>.....</i>	<i>.....</i>	<i>.....</i>	<i>-30,000</i>	<i>-100.0%</i>
Total	980,000	768,038	1,045,000	276,962	36.1%	65,000	6.6%

Quantum Information Science Centers

- ▶ The FY2020 budget request includes funds in HEP, BES, and ASCR for at least one jointly-supported and multidisciplinary QIS Center, as per the National Quantum Initiative Act signed into law in December 2018
- ▶ Last week (May 20th), DOE published a notice in the Federal Register (FR) with two components:
 - ▶ A Notice of Intent (NOI) indicating that DOE-SC is considering issuing a Funding Opportunity Announcement in FY2020 for Quantum Information Science Centers
 - ▶ A Request For Information (RFI) seeking stakeholder input on the topic areas, organization, requirements, review criteria, and assessment process for prospective QIS Centers
- ▶ Comments are due on or before July 5th
<https://www.federalregister.gov/documents/2019/05/20/2019-10427/notice-of-intent-and-request-for-information-quantum-information-science-centers>
(or search "quantum" on the FR homepage)



Strategic Planning



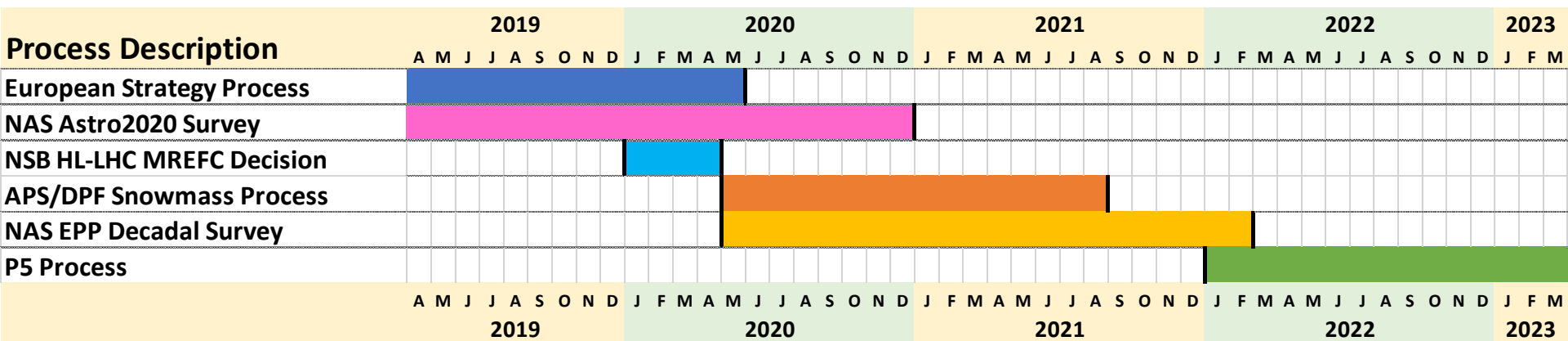
Timeline for Updating the U.S. Strategy

- ▶ **The May 2014 P5 report was successful because it was well informed by the science community**, including information from:
 - ▶ 2010 New Worlds, New Horizons in Astronomy and Astrophysics
 - ▶ 2012 Report of the Subcommittee on Future Projects of High Energy Physics (Japan)
 - ▶ 2013 European Strategy for Particle Physics Report
 - ▶ 2013 U.S. Particle Physics Community-driven “Snowmass” process
- ▶ The timeline of processes that impact the next strategic plan:
 - ▶ 2018-20: New NAS Astronomy and Astrophysics Decadal Survey
 - ▶ 2019: Start of European Strategy for Particle Physics process
 - ▶ 2019/20: Anticipated Japanese decision on ILC
 - ▶ 2020: Release of updated European Strategy for Particle Physics
 - ▶ 2020: Earliest opportunity for National Science Board to approve obligating HL-LHC MREFC
- ▶ **From a DOE perspective, the earliest that new APS/DPF Snowmass, NAS Elementary Particle Physics Decadal Survey, and P5 processes could begin is 2020**
 - ▶ **Relative timing of Snowmass, P5, and NAS EPP Decadal Survey to be determined**
 - ▶ **Enables receiving next P5 recommendations by March 2023, in time to inform FY 2025 budget formulation**



Possible Strategic Planning Timeline

- ▶ To provide timely input to the FY25 budget formulation, the next P5 report will be required by March 2023
- ▶ U.S. Community considering Snowmass process with major meeting occurring in summer 2021
- ▶ Potential timeline for the next NAS EPP Decadal Survey
 - ▶ Overlap with Snowmass could enable synergy with Snowmass processes and delivery of report as P5 process begins



Other News



2019 HEP PI Meeting

- ▶ The 2019 HEP PI Meeting will be held in parallel to the APS DPF 2019 Meeting
- ▶ More information on PI Meeting events will follow



The poster features a cityscape at sunset with a large, modern building in the foreground. Text on the poster includes: 'Meeting of the Division of Particles & Fields of the American Physical Society', 'DPF2019', 'July 29-August 2', 'Northeastern University', 'Boston, MA', 'dpf2019.northeastern.edu', 'APS DIVISION OF PARTICLES & FIELDS', 'Northeastern College of Science', and a list of the Program Committee members.

DPF2019
Meeting of the Division of Particles & Fields of the American Physical Society
July 29-August 2
Northeastern University
Boston, MA
dpf2019.northeastern.edu

APS DIVISION OF PARTICLES & FIELDS

Northeastern College of Science

Photo by Matthew Mudoono/Northeastern University

Program Committee:

Emanuela Barberis (Northeastern U.) Co-Chair	Mirjam Cvetič (U. of Pennsylvania)	Bo Jayatilaka (FNAL)	Steven Ritz (U. of California Santa Cruz)	Stefan Söldner-Rembold (U. of Manchester)
Toyoko Orimoto (Northeastern U.) Co-Chair	André de Gouvêa (Northwestern U.)	Young-Kee Kim (U. of Chicago)	Kate Scholberg (Duke U.)	Tim Tait (U. of California Irvine)
George Alverson (Northeastern U.)	Dmitri Denisov (FNAL)	Rafael Lang (Purdue U.)	Louise Skinnari (Northeastern U.)	Stephane Willcoq (U. of Massachusetts Amherst)
Priscilla Cushman (U. of Minnesota)	Hassan Jawahery (U. of Maryland)	Michael Peskin (SLAC)	Marcelle Soares-Santos (Brandeis U.)	Darlen Wood (Northeastern U.)

Office of Science Website Updates

- ▶ The old science.energy.gov site has been replaced with:
 - ▶ A public-oriented energy.gov with Science Highlights, Program News, and more
 - ▶ A PI-oriented OSTI site (previous science.energy.gov content) with FOAs, etc.

<https://www.energy.gov/science/hep>

<https://science.osti.gov/hep>

The screenshot shows the new energy.gov website. The top navigation bar includes 'ENERGY.GOV', 'Office of SCIENCE', and 'National Labs'. A search bar is located in the top right. The main navigation menu includes 'About Us', 'INITIATIVES', 'MISSION', 'SCIENCE & INNOVATION', 'FUNDING', and 'RESOURCES'. The 'HIGH ENERGY PHYSICS' section is highlighted, and a dropdown menu is visible. The main content area features a large image of a particle detector with the text 'High Energy Physics' and three sub-sections: 'Science of High Energy Physics', 'Impact of High Energy Physics', and 'Funding Opportunities'. Below the image, there is a paragraph of text describing HEP research and its impact, followed by a 'What's New' section with the text 'Coming soon'.

The screenshot shows the old science.osti.gov website. The top navigation bar includes 'SC Home', 'Organization', 'Jobs', and 'Contact'. A search bar is located in the top right. The main navigation menu includes 'Home', 'Programs', 'Laboratories', 'User Facilities', 'Universities', 'Funding', 'Science Features', and 'About'. The 'High Energy Physics (HEP)' section is highlighted, and a dropdown menu is visible. The main content area features a large image of a particle detector with the text 'High Energy Physics (HEP)' and a list of sub-sections: 'About', 'Research', 'Facilities', 'Science Highlights', 'Benefits of HEP', 'Funding Opportunities', 'Advisory Committees', 'High Energy Physics Advisory Panel (HEPAP)', and 'Community Resources'. Below the image, there is a paragraph of text describing HEP research and its impact, followed by a 'What's New' section with the text 'Coming soon'.

Comings & Goings

- ▶ **Outgoing:**
 - ▶ Bruce Strauss (March `19)
- ▶ **DOE Federal Position for Intensity Frontier**
 - ▶ No candidate selected in initial posting...
- ▶ **DOE Federal Position for SURF Program Manager**
 - ▶ Expect a posting soon!
- ▶ **Always looking for candidates to help with critical tasks**
 - ▶ Interested parties should contact HEP Management!



Closing Remarks

- ▶ Excellent science results continue to be produced from our operating experiments!
- ▶ Broad support is enabling us to implement the P5 strategic plan and achieve its vision
 - ▶ Thanks to DOE Management, Administration, and Congress for support
- ▶ The particle physics community continues to perform well on delivering projects, a foundation of the long-term strategy
- ▶ Community continues to be unified in support of P5 strategy





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