



U.S. Department of Energy
and the
National Science Foundation



Dr. JoAnne Hewett
Chair, High Energy Physics Advisory Panel
Theory Group, MS 81
SLAC National Accelerator Laboratory
2575 Sand Hill Road
Menlo Park, California 94403

Dear Dr. Hewett:

We are grateful to the High Energy Physics Advisory Panel (HEPAP) for their many contributions to the development of the 2014 Particle Physics Project Prioritization Panel (“P5”) Report, which successfully laid out a compelling research program that employed world-leading facilities and exciting new capabilities. HEPAP’s 2019 review of P5 implementation demonstrated that many of the report’s recommendations are being realized and the community is making excellent progress on the P5 science drivers. As we approach again a community-led “Snowmass” process to consider the most exciting particle physics opportunities for the coming decades, we think it is timely to consider more closely the unique international context of particle physics, and how we can best position the U.S. program and its researchers for success in this evolving landscape.

A core tenet of the P5 Report is that particle physics is fundamentally a global enterprise. The close connections of U.S.-based researchers to major international facilities, as well as the many international scientists conducting their research in the U.S., speak to how the enterprise of particle physics is tightly interwoven across multiple borders and time zones. Today, the international particle physics community is larger and more diverse than ever before, expanding opportunities for collaboration and partnership.

Looking to the future, we want to ensure that the U.S. continues to be a leader in particle physics internationally and remains one of the best places to conduct research, as well as preserving its ability to collaborate effectively at leading facilities hosted elsewhere. We want to be the best partner we can be for the international scientific community.

To that end, we must develop and maintain world-leading capabilities in key technologies, especially particle accelerators and detectors, as well as high performance computing; and also provide compelling, inclusive, and equitable opportunities for all those who want to explore the secrets of the universe at their most fundamental level.

Therefore, the Department of Energy and the National Science Foundation request that HEPAP develop a report providing further input on possible P5 implementation strategies, particularly in the unique international context of particle physics noted above. Specifically, we ask HEPAP to address the following questions:

- How can the U.S. particle physics program maintain critical international cooperation in an increasingly competitive environment for both talent and resources? In areas where the U.S. is leading, how can we sustain our roles and attract the best international partners? In other areas, how can the U.S. build and maintain its reputation as a “partner of choice”? In general, are there barriers that can hinder our ability to form effective and enduring international partnerships?
- Identify key areas where the U.S. currently has, or could aspire to, leadership roles in High Energy Physics (HEP) via its unique or world-leading capabilities (i.e., advanced scientific facilities and tools), or leading scientific and technical resources, including highly trained personnel and supporting infrastructure. This may include emerging areas or opportunities that offer significant promise for leadership. To preserve and foster U.S. leadership roles within reasonable resource constraints, are there particular technical areas or capabilities that could be emphasized? Are there other technical resources and capabilities that could be leveraged in to achieve these goals, possibly through collaborations within and beyond the HEP community?
- How can programs and facilities be structured to attract and retain talented people? What are the barriers to successfully advancing careers of scientific and technical personnel in particle physics and related fields, and how can U.S. funding agencies address those barriers? A complete answer to these questions must address how we can ensure that we are recruiting, training, mentoring, and retaining the best talent from all over the world, including among traditionally underrepresented groups within the U.S.

We would appreciate receiving a written report by July 1, 2022.

Sincerely,

J. Stephen Binkley
Acting Director
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