

HEPAP Assessment of Progress on 2014 P5 Report

In 2019, halfway through the 10-year strategic plan for U.S. particle physics presented in the 2014 report of the Particle Physics Project Prioritization Panel (P5), the High Energy Physics Advisory Panel (HEPAP) evaluated the plan's implementation. The review concluded that the U.S. Department of Energy (DOE) and National Science Foundation (NSF) have successfully carried out the first five years of the plan, which focused on construction of experimental facilities. Going forward, reviewers said, it will be important to fully support plans for operating those facilities and provide adequate research support to the particle physics community for carrying out the remainder of the plan and achieving its scientific goals.

The 2014 P5 report, "Building for Discovery: Strategic Plan for U.S. Particle Physics in the Global Context," presented a 10-year strategic plan for U.S. High Energy Physics (HEP). The plan emphasized the global nature of particle physics and recommended construction of projects both large and small, including a new international facility in the U.S. to study the nature of neutrinos. These projects would push the field forward by advancing discovery science in five intertwined areas of science that drive progress in the field.

Last year, HEPAP evaluated the implementation of this report to date. The panel heard presentations on the current High Energy Physics science landscape, including developments in each of the P5 science drivers; the status of each project; and how the agencies have been executing the plan.

The assessment concluded that:

- ▶ The five P5 science drivers continue to describe the most urgent questions in our field.
- ▶ The DOE and NSF have closely followed the advice given in the P5 Report and have been successfully executing the plan. All the projects in the plan are

underway, with some projects nearing completion and the rest proceeding in a timely fashion. This suite of projects is expected to yield exciting discovery science for the next decade.

- ▶ Thanks to generous DOE Office of Science budgets, construction of the Long-Baseline Neutrino Facility and Deep Underground Neutrino Detector is farther along than envisioned by P5. Timely construction of this international facility is critical to achieving our national priorities.
- ▶ While investments over the past 5 years have focused on project construction, it will be fundamentally important to balance the components of the HEP budget to continue successful execution of the P5 plan. Operations of the newly constructed experiments require full support to reap their scientific goals. The HEP research program also needs strong support to fully execute the plan, throughout the construction, operations, and data analysis phases of the experiments, and to lay a foundation for the future.



JoAnne Hewett

Chair, High Energy Physics Advisory Panel

On behalf of the members of HEPAP:

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