

Statement of Intent
between
The United States of America
and
The European Organization for Nuclear Research
concerning
Future Planning for Large Research Infrastructure Facilities,
Advanced Scientific Computing, and Open Science

The United States of America and the European Organization for Nuclear Research (CERN),

- Recognizing the historic and long-standing partnership between the United States and CERN in the fields of nuclear science and particle physics to strengthen their cooperation in science, technology, and innovation for peaceful purposes;
- Understanding the role of major research facilities in spurring scientific questions and technological innovation for the benefit of humanity and industrial advancement;
- Acknowledging the importance of the 2020 Update of the European Strategy for Particle Physics¹ and the 2023 Particle Physics Projects Prioritization Panel² in guiding the long-range strategy processes for Europe, CERN, and the United States;
- Having regard to the important and leading roles that U.S. and CERN scientists have played in developing and executing one another's strategy processes;
- Seeking to strengthen the relationship between the United States and CERN through stronger collaboration and coordination to facilitate their respective long-term planning exercises;
- Recognizing that the Higgs boson, discovered through international collaborations at CERN in 2012, is a unique fundamental particle in our universe that is responsible for not only generating matter in the early Universe but today serves as a novel tool to enable future scientific discoveries;

¹ "2020 Update of the European Strategy for Particle Physics," as decided by the CERN Council on June 19, 2020. Strategy is available at: <https://europeanstrategyupdate.web.cern.ch/>.

² "Exploring the Quantum Universe: Pathways to Innovation and Discovery in Particle Physics," a long-range strategy report of the 2023 Particle Physics Project Prioritization Panel, or "P5", approved by the U.S. High Energy Physics Advisory Panel on December 8, 2023. Report is available at: <https://www.usparticlephysics.org/2023-p5-report/>.

- Understanding the historic role of advanced scientific computing resources in addressing the significant computing challenges presented by the next generation of scientific user facilities as well as in advancing industrial development;
- Valuing open science in providing access to publicly-supported research, accelerating scientific discovery and innovation, promoting public trust, and driving more equitable outcomes; and
- Welcoming the recommendations of the 2023 U.S. International Benchmarking Study,³ which urges the United States to strive in partnering in major future accelerator facilities hosted abroad and further urges this action to be done in parallel with actively seeking international partners to engage in facilities constructed in the United States, thereby allowing scientists to participate in the best science wherever it is done and enabling collaborations throughout the full lifecycle of an initiative, including in the early conceptual and development phase, construction, operation, and physics exploitation.

The United States and CERN intend to:

- Enhance collaboration in future planning activities for large-scale, resource-intensive facilities with the goal of providing a sustainable and responsible pathway for the peaceful use of future accelerator technologies;
- Continue to collaborate in the feasibility study of the Future Circular Collider Higgs Factory (FCC-ee), the proposed major research facility planned to be hosted in Europe by CERN with international participation, with the intent of strengthening the global scientific enterprise and providing a clear pathway for future activities in open and trusted research environments; and
- Discuss potential collaboration on pilot projects on incorporating new analytics techniques and tools such as artificial intelligence (AI) into particle physics research at scale.

Should the CERN Member States determine the FCC-ee is likely to be CERN's next world-leading research facility following the high-luminosity Large Hadron Collider, the United States intends to collaborate on its construction and physics exploitation, subject to appropriate domestic approvals.

Consistent with the closing statement of the 2023 Summit on Accelerating the Adoption of Open Science,⁴ the United States and CERN affirm their collective mission to take swift

³ *"The Path to Global Discovery: U.S. Leadership and Partnership in Particle Physics,"* a report from the U.S. High Energy Physics Advisory Panel's International Benchmarking Subpanel, November 2023. Report is available at: https://science.osti.gov/-/media/hep/hepap/pdf/Reports/2024/International_Benchmarking_HEPAP_2023.pdf

⁴ *"2023 Summit on Accelerating the Adoption of Open Science: Closing Statement,"* a joint summit to promote open science policies and practices held by CERN and NASA in July 2023. Additional information, including the statement, is available at: <https://home.cern/news/news/knowledge-sharing/cern-and-nasa-join-forces-commit-research-future-open-and-accessible>.

strategic action that leads to accelerating widespread adoption of equitable open research, science, and scholarship throughout the world.

The United States and CERN intend to promote cooperation in particle physics as outlined in this vision to continue providing social and economic benefits while fostering the advancement of knowledge in basic scientific research and enhancing international scientific cooperation under their respective leaderships.

This Statement of Intent does not give rise to any legal rights or obligations, nor does it commit resources of the United States, CERN, or the CERN Member and Associate Member States.

Signed at Washington, in two originals, in the English language.

For the United States of America:

For the European Organization
for Nuclear Research:

Deirdre K. Melliga

Fabrice Gianotti

Date: April 26, 2024

Date: April 26, 2024