



Contribution ID: 11

Type: **not specified**

## Fermilab Interest in a Higgs Factory at CERN

The 2023 Particle Physics Project Prioritization Panel (P5) in the US, in putting forth a strategic plan for the US in the context of a 20 year vision for global particle physics, has recommended the construction of an off-shore Higgs Factory and that the US engage in the feasibility studies and contribute and collaborate if the project is approved for construction.

Fermilab teams have made major contributions to collider physics, from simulation and algorithm development to a broad array of physics measurements. Through R&D, construction and operations of collider detectors for past and on-going experiments (CDF, D0, CMS), Fermilab has developed unique world class facilities and in-house technical expertise (Appendix) that enable a variety of cutting-edge detector and computing R&D for future projects.

Apart from the availability of a broad spectrum of world class facilities, capabilities and competencies, their co-location and synergy is what makes Fermilab a leader in the field. As host laboratory for the USCMS, Fermilab is a national hub for US contributions to CMS.

Fermilab's aspiration is to make leading physics, detector, and computing contributions to the electron-positron Future Circular Collider (FCC-ee), if this is Europe's choice, or to the Higgs Factory program that emerges from the European Strategy process. Fermilab also aims to become the US host laboratory for one of the FCC-ee experiments.

**Authors:** CANEPA, Anadi (Fermi National Accelerator Lab. (US)); APRESYAN, Artur (Fermi National Accelerator Lab. (US)); PEÑA, Cristián (Fermi National Accelerator Lab. (US)); CUMMINGS, Grace (Fermi National Accelerator Lab. (US)); DUTTA, Irene (Fermi National Accelerator Lab. (US)); FREEMAN, Jim (Fermi National Accelerator Lab. (US)); HIRSCHAUER, Jim (Fermi National Accelerator Lab. (US)); GRAY, Lindsey (Fermi National Accelerator Lab. (US)); BAUERDICK, Lothar A T (Fermi National Accelerator Lab. (US)); SAFDARI, Mur-taza (Fermi National Accelerator Lab. (US)); BACCHETTA, Nicola (Universita e INFN, Padova (IT), FERMILAB (US)); HOECHE, Stefan (Fermilab); ELVIRA, Victor Daniel (Fermi National Accelerator Lab. (US))