Potential Fermilab Muon Campus and Storage Ring Experiments

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The physics / basic idea of the LOI

- Workshop on potential Fermilab Muon Campus and storage ring experiments:
  - Open to a wide range of ideas in and beyond muon physics, including pions, polarized protons, etc.
  - Maximize physics production by taking advantage of investments in existing infrastructure and accelerators.
- Provide Snowmass venue for interested parties to discuss potential experiments.
- Multidisciplinary workshop spanning multiple Snowmass frontiers:
  - Rare Processes and Precision Frontier
  - Theory Frontier
  - Accelerator Frontier
  - Instrumentation Frontier
  - Computational Frontier

What is required for the LOI to succeed

- Nature of workshop:
  - One-time “self-contained” event before Snowmass 2021 Community Summer Study (CSS).
  - Opportunity for different parts of community to come together to discuss usefulness and feasibility of potential Fermilab Muon Campus and storage ring experiments.
- Host workshop at Fermilab if COVID safety permits, otherwise it will be a virtual workshop:
  - Decide beginning of 2021.

What do you plan to do during Snowmass

- Hold workshop during first week of March 2021.
- Produce contributed paper that summarizes ideas discussed at workshop:
  - Submit paper by the deadline for Snowmass 2021 proceedings.

What do you hope to get out of Snowmass

- Goal is to help stimulate production and refinement of white papers and letters of intent for potential experiments:
  - Intend that ideas discussed at workshop will turn into future experiments at Fermilab.
  - Request opportunity to give a post-workshop summary presentation at CSS or other appropriate Snowmass venue.

Optional additional slide (if time permits)

- Why Fermilab Muon Campus and storage ring experiments?
  - Muon Campus provides world class experiment and accelerator infrastructure.
  - PIP-II upgrades to Fermilab accelerator complex allow for megawatt level proton beams that enable very large data sets.
  - Worthwhile to explore ideas for developing new experiments that have small incremental cost on top of existing infrastructure investments.
  - Benefits particle physics, accelerator, and scientific computing communities if existing Fermilab infrastructure is used to support a diversified short-, medium-, and long-term intensity frontier program.