Discussion Session:
Results needed for pre-CDR

FPF6
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Near Term Physics Publications

There has been a lot of good discussions and results in the physics working groups. It would be good to document those results.

- Study of constraining power of the FPF neutrino data for SM & BSM physics. Follow up study on BSM neutrino oscillation planned (see Toni's talk).

- (WG1) FPF sensitivity for PDFs (will also provide a complete set of FPF DIS pseudo-data with uncertainties which can be used for many other studies e.g. tests of LFU with tau neutrinos etc)

- (WG2) report of existing forward charm predictions and nu-fluxes

- (WG3) report of existing forward light hadron predictions and nu-fluxes

- (WG4) various ongoing studies on LLPs, DM, neutrino tridents, FORESEE, quirks …

Pre-CDR: Question and Outline Idea

- Includes Facility and Experiments?
- What's the timeline? End of the year?
- What's the envisioned length? 50pages?
- What's the level of detail needed?
- We need to show progress compared to previous documents!

- Proposed outline: similar to FPF P5 document

1. Executive Summary: 1-2pages
2. Introduction: 1page
3. Science case: 10 pages (see next page)
4. Facility: 10 pages
5. Experiments: 5 page per experiment
6. Timeline and Budget: 10 pages

Total: 55 pages?

Pre-CDR: Science Questions

BSM Physics (WG4):

- Previously done at pheno level. Do some of them at Geant4 level?
- Choose some physics examples: LLP, MCP, …

Neutrino Physics (???):

- neutrino cross sections, tau neutrinos, LFU: not sure what to do here …

QCD:

- Neutrino Scattering (WG1): How v-scattering @ FPF will improve PDFs, maybe also present impact for key measurements, e.g. W-mass?
- Neutrino Flux (WG3): How FPF will constrain forward hadron production, show that it will help to solve CR muon puzzle.
- Neutrino Flux (WG2): How FPF will constrain forward charm production. Quantify how well we can constrain some QCD effect (intrinsic charm, saturation). Maybe also show impact for key measurements, e.g. Higgs cross section at FCC, and astro-particle physics, prompt atmospheric v-flux.

We need to show progress! We need to quantify our science case.

FPF Theory Day

Idea to have a dedicated day on FPF theory discussions

- more detailed theory presentations
- discussions across working groups (flux vs interactions, light vs heavy hadrons, SM vs BSM)
- maybe also some parallel sessions, where anyone could sign up for talks, to engage the broader FPF community (especially for BSM)

What do people think?

What format? Remote or in-person?
What would be a good time? Summer?
What length? Half day? Two half days? One day?