

Organizational comments, technical progress, Snowmass, etc.

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Organizational issues

- Far forward physics group - This group will have a broad agenda to discuss forward physics from the LHC. It will allow discussion of physics topics related to the forward physics facility (FPF) that go beyond any particular detector design.
 - Brian Batell, Sebastian Trojanowski, Milind Diwan will organize this for the coming year.
 - Monthly meetings. We may want to change the time depending on the engagement.
 - This group will need to decide on future studies and white papers on both SM and BSM physics.
- Technical group - This group will have the specific focus on FLARE detector design and integration into the FPF.
 - Steve Linden and MVD will organize for the coming year.
 - Meetings have not been decided yet. We are consulting with key BNL technical people. Also needs considerable input from CERN people.
 - This group will be responsible for detector feasibility and the pre conceptual design report. Target date for draft: December 2022.
- We are planning for a workshop at the Center for Frontiers in Nuclear Science at Stony Brook (tentative October 10-12, 2022). We (JLF and MVD) may ask people to get involved in the organization of this workshop.
- Snowmass Community Summer Study in Seattle will be July 17-26. MVD will be in Seattle full time for this event. Please let me know who else will attend from this group.
- New FLARE and neutrino physics postdoc opportunity will be advertised at BNL. Will be sent to this group.

Snowmass community study

How to engage ?

- From A. Tricoli —
- “A part of general plenaries on day-1 and day-9 to day-10 for introductions/summaries, management sessions, plans, lab directors talks, funding agencies talks etc.”
- “*..during the core of the meeting (day-2 to day-8) there will be parallel sessions in the mornings and plenary sessions in the afternoons arranged mostly by frontier. In the afternoons we have only one plenary session of 1.5 hours (colloquium style) for the whole EF, and one joint session on leptons colliders. In the morning sessions we will have a few EF-specific sessions arranged by report type and topic, i.e. Higgs boson, BSM non-DM, BSM DM, QCD, top/heavy flavor. In those parallel sessions in the mornings we will have time to discuss in-depth topics like forward physics.*”
- “advice is to get in touch with the appropriate TG convenors, based on the topics you want to discuss (BSM, QCD etc.) and mention to them what you would like to discuss such that they can add it to their list of topics to tackle in their respective sessions”
- JLF and MVD will communicate to figure out how to do this. We are going to need help.

Technical Group organization for FLARE.

Major packages of work for the CDR. Each of these packages will need a precise goal and authors/editors for the document. **Proposal below.**

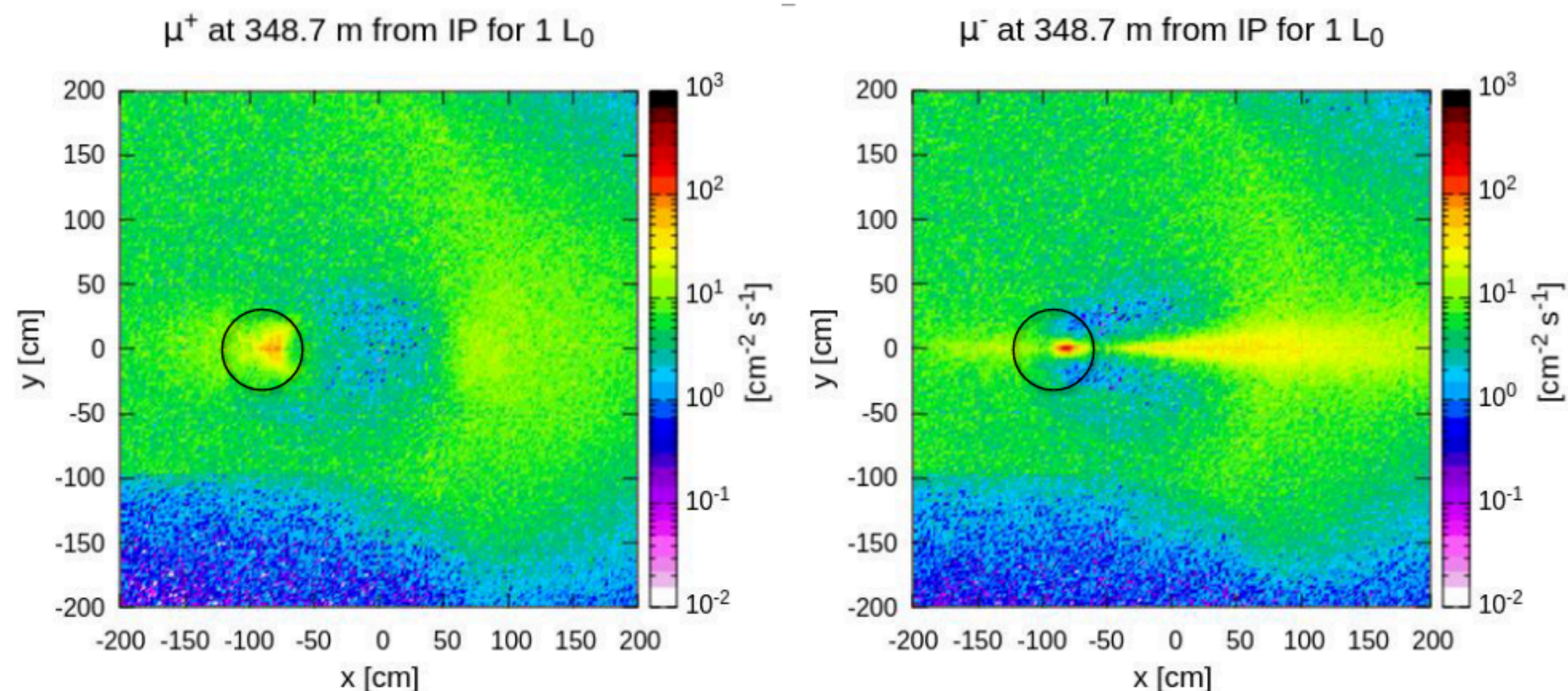
- Simulations - Focus on neutrino physics goal of 1) detection, 2) CC energy measurement, 3) muon, electron, tau particle ID. This focus will lead to detector design and then we can also examine BSM physics reach. Keep simulations at the generic detector performance level (not detailed simulations at the digitization level). We need to understand what kind of resolution is really needed for physics.
- Cryogenics and integration into FPF - Focus on membrane cryostat and modular approach to installation. Needs considerable input from CERN technical personnel.
- TPC design - Focus on modular TPC design with several options for gap size and orientation (E field parallel or perpendicular to the beam). No need to formulate a preference yet for the CDR.
- Anode and electronics design - Focus on optimizing anode and electronics design for high spatial resolution and multitrack resolution ($\ll 1$ mm ?). This is a key focus of any hardware R&D also.
- Photon sensor and trigger design - Optimize for expected muon rate and use existing designs from ICARUS/SBND/protoDUNE etc.

FPF experimenter's meeting and muon rate

Please see <https://indico.cern.ch/event/1146501/>

Muon distribution at 348.7 m (end of half-cell 9)

- Result from 1st step simulation to be used as source in the 2nd step.



○ machine location
(superconducting magnet section inside the cryostat)

A lot of progress is expected soon.

The rate is manageable so far, but there are hot spots that need to be understood.

Sweeper magnet design needs to be optimized.