Minutes NF topical conveners meeting 10/28/2020

Minute taker: Josh Klein

Would like a joint NF/IF meeting.

CPAD workshop March 18,19,22, and NF workshop is 3/15-17, 2021.

Would like to find date around this time---maybe 3/18?

Let's propose that.

LOI matrix---almost done! Dealing with things that might slip through. There

are a few that don't have "primaries"

e.g., Synergy of Astroparticle and Collider physics. Put down NF04 and

NF06...NF04 has adopted it.

Quantum computing applications to reactor neutrino flux---NF09 has taken it.

Several late ones...

Multimaterial scintillators---NF10.

R&D for barium tagging---NF10, or NF05? NF10 is swamped...could go with NF05.

Neutrino physics with muon decay NF9

Ocean bottom will go to NF04, NF10 still tagged

Electron capture and beta decay...NF5? Will check the LOI to see if focus is on

tech or experimental sensitivity.

...others as Patrick has suggested...

Report outline

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Waiting for steering group feedback for overall shape of report. Some slides

from YK have been distributed but not settled yet.

Have expressed to convener group that model of having ever TG writing 50+ pages

seems like too much. Suggested something shorter---maybe 70 pages for entire

Frontier, not necessarily factorized by topical groups. Steering group

suggesting 50 pages for entire Frontier report.

What about computing and algorithms...? Not a lot of LOIs to NF on this, most

to CompF. Will coordinate with Alex so that cross-referencing can get done.

What about a theory section?

-Theorists are part of theory frontier

-Need to coordinate between how neutrino theory gets referenced in NF report

Can weave this in through sections; reference theory within particular physics

topics.

What will P5 do about theory? This is a broad topic, needs discussion. All

frontiers have similar problem. Last P5 report not great for theory.

Need to be sure TGs fill in the things where they should be long in outline.

What about neutrino interactions and cross sections? Will be hard to distribute

this across other topics. Should it be a section or subsection?

Should there be a white paper from CEvNS to ICECUBE energy scales for neutrino

interactions? Zeller and Formaggio review article covers a lot but is not very

current anymore, doesn't go all the way to ICECUBE (although DIS is presumably

all that is left up there?).

Idea for report is that if you don't know a lot about NF, you can sit down and

read our 70 pages you can get a complete picture. Shouldn't be just a long list

of references. Don't want to be forced to look up all references.

Shouldn't theory at least be mentioned in outline? Is Section 3 ("Physics

Topics") theory? Could relable it "Physics Topics and Theoretical Motivations"

or something like that.

Probably make theory a subsection in 3, leading with this (not at the end).

What about BSM physics at neutrino experiments that is not about neutrinos

(e.g., nucleon decay). Already included in heading for 3.3, needs to have

sub-sub-headings filled in.

Section 3 and 4 are not theory and experiment; section 3 includes experiments

whose "TDR is written" while Section 4 is forward-looking about enabling

technologies and tools.

What about anomalies? If 3.2 is general BSM, should sterile be a different

thing? Neutrino anomalies have in some cases become discoveries (unlike other

fields). So this probably deserves a bigger highlight.

Maybe organize document by "motivations"---some are theoretical, some are

experimental.

Any major places where we need to comment, like LAr vs. H2O last time?

BB decay is one place where there is a lot of discussion, but there is already

a down-select process. Relevant TG is focusing on beyond the tonne-scale that

is already being decided.

What about exploiting LBNF, and even DUNE Module 4? Could be other

technologies---Theia, LiquidO, etc. Can discuss physics capabilities that the

community would like, should not take decision for Module 4 out of DUNE

collaboration's hands, but discussing things community would like detector to

do makes sense.

"Contribution workshops"---set stage and formulate goals for "level-3" sections

in report. Goal is to use these to get to a final report.

How do we write report before we get input from community? Some workshops have

already happened, start with that. Can request white papers. Plan is some

level of report draft by March meeting---can't wait for white papers, but there

will be time after March to include them. Best way to get input is to write

something and see what people say and criticize.

Thinking of having regular 2-hour meetings, or should it be one 3-day affair?

If it were in-person, 3-day meeting would be better. Not clear now.

To make it work, probably need to do this as small groups. Can use conveners

as moderators. By giving "assignments" you can get people to talk. Slack can

also work. Need to get people to move to Slack, including one-on-one

discussions. No question this will be different, and more difficult, than any

other Snowmass. Just will miss the one-on-one or one-to-few interactions we

used to have informally.

SEC Report

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Positive impression of CPM, enjoyed plenary. Parallel sessions meant a lot was

going on, navigation was challenging cut customized spreadsheet very helpful.

Seemed to be a disconnect between what people expected going in, and what

happened, in terms of early career participation. Having to do things

virtually did not help here.

Other parts of process seemed to engage EC speakers more, such as TF11.

Was this a problem for both parallel and plenary? Seemed to be across these.

Depended a lot on which session you joined.

EC members expected to be less involved over next few months---LOI process

over, job season is going on.

May have a small NF-EC workshop, maybe to discuss tools, or maybe to talk about

career development. Could also be a journal club, related to Snowmass.