

DPF Core Principles and Community Guidelines (CP&CG)

- By participating in this meeting, you agree to adhere to the CP&CG
 - **Respect and support community members**
 - **Commit to constructive dialogue and take initiative**
 - Details of what this means, expectations for behavior, and accountability procedures are provided in the CP&CG document linked at:
<https://snowmass21.org/cpcg/start>
- Everyone is invited to invoke the CP&CG as needed to encourage constructive and supportive collaboration
- The conveners of this meeting are your recommended first point of contact for reports of CP&CG violations occurring here
 - The conveners have received training in the CP&CG and how to handle reports
 - The CP&CG accountability procedure is designed to encourage early intervention and is flexible enough to appropriately address issues ranging from the discourteous to the egregious
 - Please do not hesitate to contact us!
- Snowmass is most successful when everyone's voice can be heard!

Low Energy Precision Measurements Neutrino Frontier

CPM Session 29

2020-10-06

Neutrino Interactions Cross Sections(NF06)

Conveners: Jonathan Asaadi, Baha Balantekin, Kendall Mahn, Jason Newby

Early Career Volunteers: Steven Gardiner, Tanaz Mohayai, Vishvas Pandey, Jacob Zetlemoyer

Primary Input to Snowmass Report answers two questions:

- What are the neutrino cross sections needed to meet the needs of the neutrino experimental and theoretical community in the next decade?
- What are the facilities, neutrino sources, detector technologies, computational tools, theoretical input, and event generators required to make those measurements?

Neutrino Frontier LOI Summary

Oscillations (NF01): 11 LOIs including Hyper-K, THEIA,
Sterile Neutrinos(NF02)

- 19 LOIs - SBL reactor, radioactive neutrino source measurements, beta spectrum measurements
- 16 LOIs - SBL Accelerator / Decay-at-rest: 16 LOIs
- 15 LOIs - Theory / Non-Vanilla-3+1 Scenarios: 15 LOIs

BSM physics (NF03): 13 LOIs BSM directly with neutrinos ... many of them low energy

NF05: 24 LOIs focused on electromagnetic properties ... most using CEvNS

Interaction Cross sections (NF06): 6 LOIs focused on low energy CEvNS, inelastic interactions

Applications(NF07): 11 LOIs with about half focused on “Near field” and CEvNS

Artificial Sources (NF09): 2 LOIs on Spallation Neutron Sources / 4 Reactors / 3 Novel sources

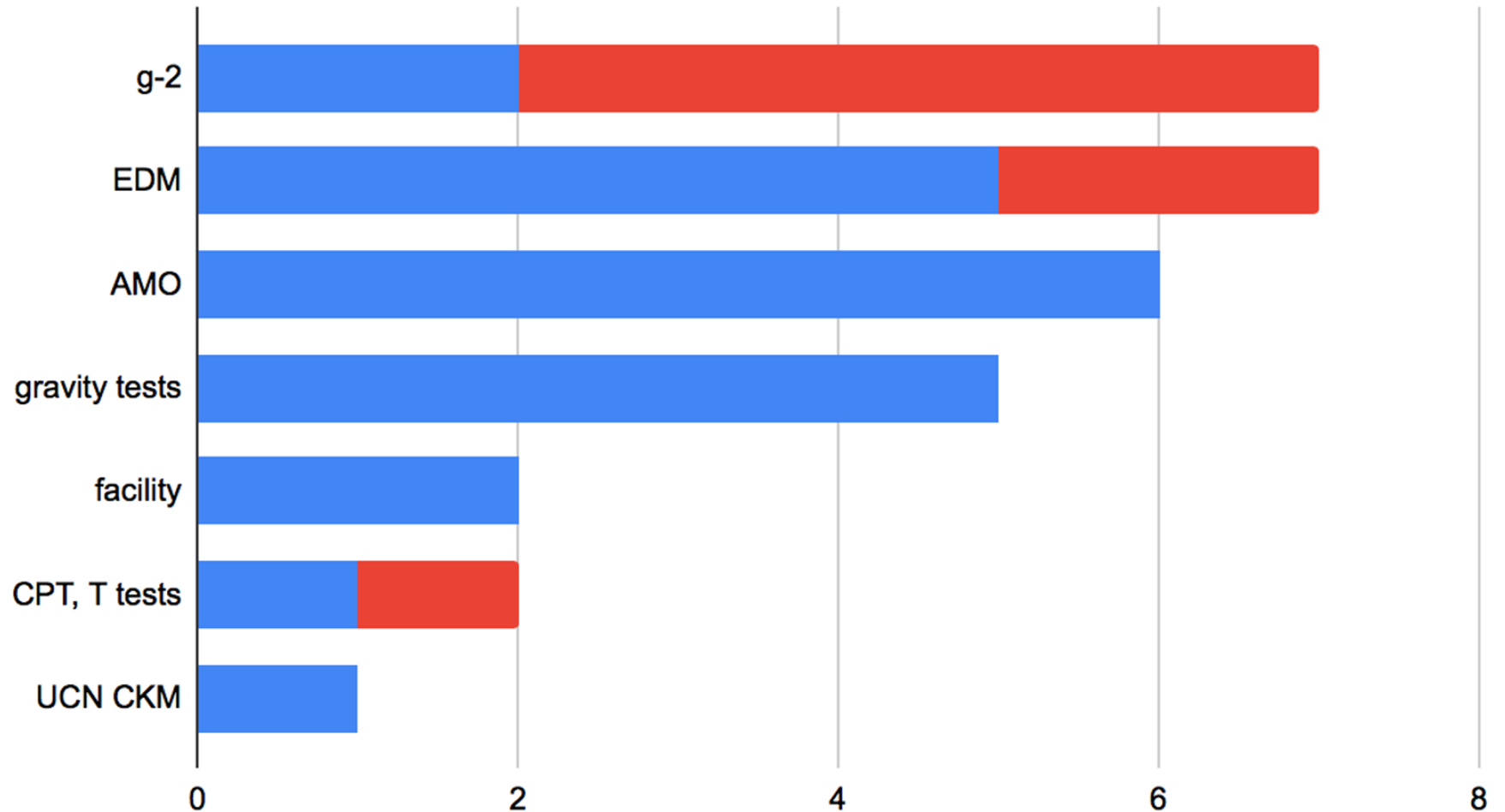
Neutrino Detectors(NF10): 21 Detector R&D / 7 focused on CEvNS detection

Rare Processes and Precision TG03: Fundamental Physics in Small Experiments

- Main focus is on experiments and theory to test C, P, T, CP, CPT but also other small scale experiments
- Topical Group Conveners:
 - Thomas Blum (UConn)
 - Peter Winter (ANL)
- EDM sub-group conveners:
 - Yannis Semertzidis (KAIST, IBS)
 - Tanmoy Bhattacharya (LANL)
- Early Career Liaisons: Joshua Barrow and Manolis
- Communication channels:
 - Email list: SNOWMASS-RPF-03-FUNDAMENTAL-SMALL@FNAL.GOV
 - Slack channel: [#rpf-03-fundamental-small](#)

25 primary LOIs received to RF03

Experiment Theory



(25 LOIs, some double counted)

Session #29

Low energy precision experiments that are relevant for global fits of the SM and SMEFT (PVES, magnetic moments, NF05 electroweak precision data and constraints on NSI)

- Short introduction by participants (we might not be able to get to each of you) for 20 minutes:
 - Please introduce your LOI relevant to this session in 30 seconds or less
- Open discussion (~30 minutes) of:
 1. What can you bring to the overall global SM / SMEFT fits, what does theory provide to leverage future experimental data, how can we optimize the physics portfolio
 - One important aspect is: Complementarity / duplication of efforts
 2. What requirements do your efforts have? What would we need to do during Snowmass to leverage low energy precision experiments and theory
 3. How do we take this common group on the path forward during Snowmass
 - What might you bring to the process and this specific topic and the overall Snowmass final report?