NuFact11 objectives

This document contains a collection of the questions and tasks that were pointed out by the working groups during NuFact10. New points might have turned up since then, and we should collect them and add to the list.

Oscillation physics working group (WG I)

From NuFact10

1) Sensitivity and optimization studies.

2) Write down a consistent model that gives observable non-standard neutrino interactions.

3) Provide physics motivation of LBL oscillations within wider context of particle physics, beyond a relatively small (compared to the scale of the facility) neutrino aficionados circle.

Neutrino scattering physics working group (WG II)

From NuFact10

The puzzle of CCQE cross-section found by MiniBooNE:

1) Disagreement versus NOMAD

2) Disagreement CC/NC versus SciBooNE

3) Disagreement versus theoretical models

Accelerator physics working group (WG III)

From NuFact10

1) Is Project X a suitable proton driver for the Neutrino Factory?
More R&D needed; e.g. stripping injection

2) What is the path for solving the problem of operating high gradient RF is strong magnetic field?
Vigorous experimental program under way

3) Does energy deposition pose SC solenoid shielding problem for presently proposed proton drivers?
Serious problem, engineering solution very challenging

4) Do we have a working Injection/Extraction scheme for NS-FFAG Rings?
Solid concept under study, component modeling

5) Is chromaticity correction sufficient to reduce the TOF problem for NS-FFAG?
Proof-of-principle solution being studied

6) Can Scaling FFAG be used in other-then-ring configurations?
Prototype lattices exist, they are very promising

7) Is there a synergetic path from the Neutrino Factory to MC?
A clear path is under study; efficient stages of 6D cooling are essential

8) Target handling for Multi MW targets ?

9) Proposed target systems are many, convergence?

10) Material property evolution with time (from radiation, strain & stress and temperature)?

11) Will the Beta Beam be possible in the CERN Complex?

12) Verification of the 18Ne production for beta beams?

13) Modeling of pion production complete?

14) How serious is power deposition in the structures after/around the target (horn, solenoids…)?

Muon physics working group (WG IV)

From NuFact10

1) LFV

2) μ-e conversion: muon colliders?

3) Dipole moments: g-2, EDM