

PBC ANNUAL WORKSHOP WRAP-UP

Introduction to discussion

**Finally back to a meeting in person after more than 2 years.....
>200 registered participants**

Thanks to Patricia and team for the Excellent Organization

Also thanks to:

Speakers for the very informative presentations

All participants and session conveners for the lively discussions

Marco d'Andrea for compiling the main points of talks and discussions

***Will focus here on coming year' main issues
for projects highlighted in the workshop introduction presentation***

ECN3 FUTURE

March 2023: decision for physics agnostic high-intensity facility (inclusion in next MTP):

- **Most critical document due by NA-CONS/ECN3 accelerator TF, BDF and CB WG, based on exp'ts requirements**
- **Experiments Lol's successfully submitted, to be scrutinized by SPSC and PBC conveners/coordination**

End 2023: decision for experimental programme (assuming positive outcome of previous step)

- **HIKE, SHADOWS and SHiP Lols to be consolidated into proposals or with addenda:**
 - Coherent simulation tools/methods for background simulations
 - Details on detectors developments, schedules and costings
 - Updated collaboration support
- **TauFV consideration will depend on updated information provided by proponents**
- **BSM physics reach of all projects to be compiled by FPC (FIPs) and BSM WG (Flavor) in worldwide context (incl. FPF)**
- **Neutrino physics reach (SHADOWS/SHiP) to be addressed by QCD WG in worldwide context (incl. FPF)**



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Dedicated PBC note due by mid-2023

Post-LS3 Experimental Options in ECN3

C. Ahdida, G. Arduini, K. Balazs, H. Bartosik, J. Bernhard, A. Boyarsky, J. Brod, M. Brugger, M. Calviani, A. Ceccucci, A. Crivellin, G. d'Ambrosio, B. Döbrich, M. Fraser, A. Golutvin, M. Gonzalez Alonso, E. Goudzovski, J. Jaeckel, R. Jacobsson, Y. Kadi, F. Kahlhöfer, M. Koval, G. Lanfranchi, C. Lazzeroni, K. Massri, M. Moulson, J. Osborne, M. Pospelov, Ch. Rembser, A. Rozanov, G. Ruggiero, G. Rumolo, Y. Soreq, T. Spadaro, C. Vallée (to be finalized).

FORWARD PHYSICS FACILITY

Good progress in the conceptual design of the infrastructure and decoupling from LHC operation constraints

Strong support from Snowmass HE group to HL-LHC auxiliary detectors

LHCC statement in September recommending to further study the FPF in the global PBC context

Next steps:

- **CDR expected in 2023 with more details on detector technical aspects, physics complementarity and Collaboration structure**
- **Relevant information on physics reach (sensitivity curves, etc...) to be provided to FPC, BSM and QCD WGs to address comparison with other projects**

LHC FIXED TARGET

Successful installation and very promising first operation of SMOG2 in LHCb

*Feedback from coming year operation will be decisive
to assess the future full physics potential of gas targets at LHC*

Very good progress in the design and preparation of crystal set-ups

*WP definition and manpower requirements for the Proof of Principle
of a double crystal set-up at IR3 during run 3 expected in coming months*

LoI for a full double crystal experiment in preparation

NA IONS

NA60++ Lol being finalized for submission in a few weeks

**NA61++ workshop on post-LS3 programme scheduled in December,
post-LS3 Lol foreseen mid-2023**

**Accelerator working group set-up to address the implications of
experiment requirements on ion sources and accelerator complex operation,
also taking into account longer term LHC requirements**

***NA experiments to optimize/refine their quantitative
beam requests for each ion and energy in order to
facilitate compatibility of all requests***

Dedicated PBC note in preparation for end 2023



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**Ion beams requirements for the North Area
Experiments post-LS3**

R. Alemany Fernandez, G. Arduini, H. Bartosik, D. Boer, N. Charitonidis, M. Gazdzicki, J. Jaeckel, M. Kuich, J. Pawlowski, S. Pulawski, G. Rumolo, G. Schnell, E. Scomarini, G. Usai, C. Vallée (to be finalized)

R&D PROJECTS

Synergies to be explored between ENUBET and NuTAG for the design of novel v-beams

**Gamma-Factory successful efforts to be continued
to strengthen Collaboration and Funding for PoP experiment implementation at SPS**

Successful series of technology workshops to be further organized

Recent progress of VMB@CERN to converge into SPSC proposal early 2023

AION100 technical report expected early 2023 as input to site decision

One advertisement:

CERN, March 13-14 2023: Long Baseline Terrestrial Atom Interferometry Workshop

(<https://indico.cern.ch/event/1208783/>)

BUSY MONTHS AHEAD...

GOOD WORK TO EVERYBODY!