

Welcome to the 11th SHiP collaboration meeting

Main goals:

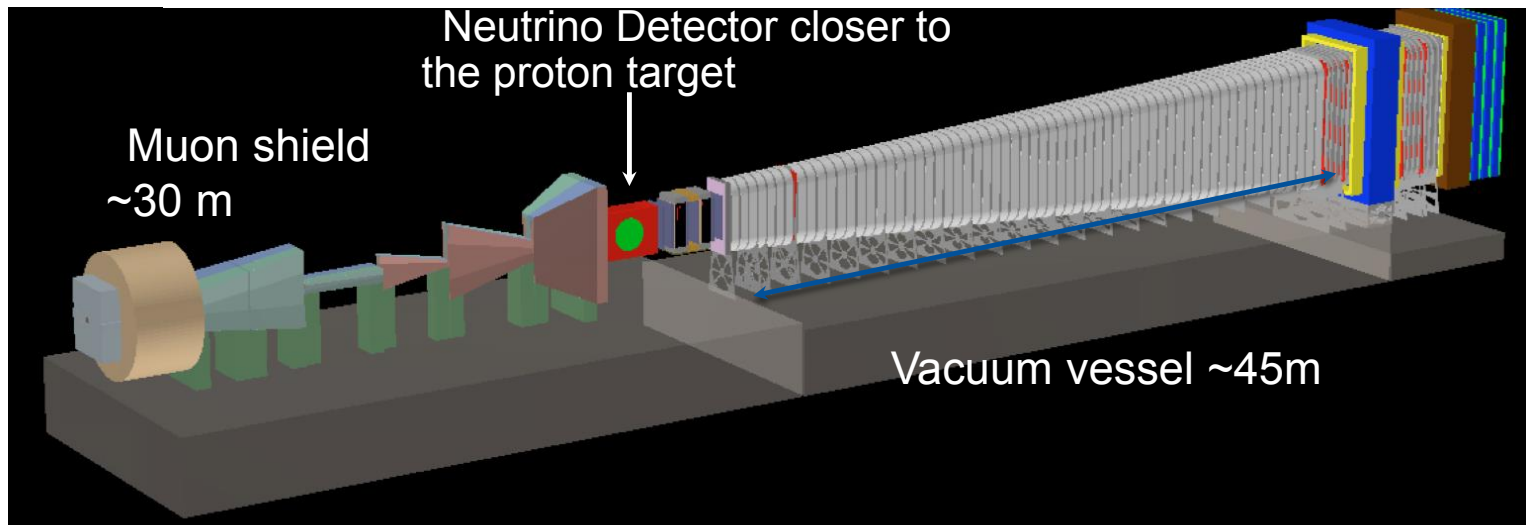
- Review the CDS studies (BDF, detector and physics)
- Discuss most important measurements and Module-0s which will be decided at the Technical Board meeting on the 13th June

CDS will improve SHiP TP version respecting cost constraints



Main goals of the SHiP optimization for the CDS

- ✓ Further optimization of the target
- ✓ Configuration of the muon shield, including magnetization of the hadron stopper (**MC to be validated with data**)
- ✓ Shape, dimension and evacuation of the decay volume



- ✓ Optimization of the emulsion detector to search for LDM
- ✓ Optimization of physics performance for various sub-detectors
- ✓ Revisit detector technologies, including new sub-detectors, to further consolidate background rejection and extend PID

Updated background estimates and signal sensitivities, and cost

- ✓ Contribution from the secondary interactions in the target improves signal yield by ~50% (**to be validated with data**)

Agenda of the meeting: Wednesday

- ✓ *BDF activities*
 - *Beam delivery*
 - *Target (update of design is expected → impact on the preparation for the muon flux measurement)*
 - *Radiological studies*

- ✓ *Muon shield*

The version implemented in FairShip works and will be a basis for the CDS Optimization (and validation) can be factorized, and is being done in parallel Plans for Module-0

- ✓ *ν_τ /LDM detector*

Magnetic field around the target ?
Optimization of the layout for the Dark Sector exploration
Plan for module-0 construction if needed

- ✓ *Surround Background Tagger*

We need a strategy on the final choice between liquid and plastic scintillator options

- ✓ *Status of decay volume*

Close monitoring that reality is not far away from the FairShip implementation
Important for background studies !

Agenda of the meeting: Wednesday - Thursday

- ✓ *Straw tracker*
Plans towards a choice of the baseline for the frames, fixation of the straws and wires. Ideas on what to be tested with Module-0 in vacuum

- ✓ *Timing detector*
Do we plan constructing a large module-0 ?
Plastic scintillator vs RPC options

- ✓ *Calorimetry (with enhanced PID performance)*
Plans how to converge towards the baseline option (to be implemented in FairShip). Timescale ???

- ✓ *Muon detector*
Well on track. Do we need a large module-0 ?

- ✓ *Software and simulation studies*
 - *Procedures of the muon shield optimization*
 - *Tracking algorithms*
 - *Updates on the liquid and plastic scint. Implementation for the SBT*
 - *Development of the machine learning methods for the reconstruction of em showers in emulsion → important for dark sector searches*

Agenda of the meeting: Thursday - Friday

- ✓ *Physics studies*
 - *U-boson*
 - *Invisible dark sector at SHiP*
 - *HNL and scalar portals*

- ✓ *Review of background evaluation with new MC data*
 - *Muon combinatorial*
 - *Muon inelastic*
 - *Neutrino*

- ✓ *Preparation towards muon flux measurement in 2018 (as will hopefully be approved by SPSC). We request 4 weeks time at the H4 beamline including 1 week for the charm cross-section measurement (proof of principle)*

- ✓ *Plans towards the charm cross-section measurement*
Timescale for the preparation of the proposal

- ✓ *Concluding reports*
 - *Physics*
 - *Detector*
 - *Conference and publications*
 - *CRB*

Interactions with SPSC and PBC

- ✓ *Progress of SHiP will regularly be discussed with the SPSC referees. No major review is foreseen before the submission of the CDS in 2018*
- ✓ ***Plan to submit the CDS to the SPSC, complemented with the R&D request for the construction of modules-0, in 2018 → to get recommendation in time with European strategy consultation. The R&D request may be submitted earlier than the CDS to ensure timely allocation of funding for the module-0s.***
- ✓ ***Agree with SPSC on the list of the SHiP milestones until TDR***
- ✓ *Work together with the PBC to prepare relevant sub-sections of the PBC document (BDF and BSM sections)*
- ✓ ***Next open follow-up workshop of the PBC group on November 21-22, 2017 at CERN***
 - *Status reports on projects under study in PBC working groups*
 - *Session dedicated to further new ideas. New call for abstracts will be launched*

Possible topics (time duration is ~2.5 hours)

Physics landscape in 10 years

- *Expectations for discoveries at LHC (theory)*
- *Lepton number conservation (theory)*
- *Review of 2β decays (experiment)*
- *Search for Dark Sector in US (experiment)*
- *Status of SHiP*