

Towards next milestones

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Context

- Renewed interest in conventional neutrino beams – discussion in the possibilities of reinstrumenting the CERN PS beam
- Proposal of Laguna LB study : study of a SuperBeam from CERN to the LAGUNA sites – clear synergy with EUROnu WP2
- Continuing studies of HP-SPL

Deliverables

Deliverable	Delivery date (months)	
Requirements for proton driver	6	Completed
Target and Collection design report	30 (February 2011)	V2
Target and Collection integration	36	
Beam characteristics	36	
Final report	48	

Milestones

Milestone	Delivery date (months)	
Proton driver report	12	Completed
Prel. Design of Target and Collection	24 (Sept 2010)	V1
1st Target and Collection integration drawings	24 (Sept 2010)	V1
1st Est. of Nu Beam Intensity	24 (Sept 2010)	Paper by Andrea
Final Target and Collection integration drawings	36	
Design of target station	40	
Report on Nu Beam Intensity	42	

Steps towards next milestones

- ◆ Produce a target and horn conceptual design report-outline
- ◆ Includes target and collection integration drawings
- ◆ V1 -early November 2010 ?
- ◆ V2 March 2011, use as deliverable
- ◆ Andrea is writing a paper on nu flux

The target and horn for the SPL-based Super Beam: preliminary design report

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Abstract

The purpose of this note is to present the conceptual design of the target and horn for the SPL-based Super Beam. We first introduce the object of this study and give a rapid overview of the main parameters of the beam. In the main part of this note we present the design, the optimization and the analysis of the target and horn.

Key words: Super Beam, EUROnu, neutrino oscillations, target, horn

1. The SPL based Super Beam project - Marco

1.1. Overview of the Super Beam experiment

1.2. The SPL parameters

1.3. The beam-target interface

2. The target station-Chris

2.1. Overview-Chris

2.2. Target replacement procedure-Chris

2.3. Energy deposition, activation studies -Christophe

2.4. Shielding design, water and air recirculation, safety and regulation aspects- ?

3. The target-Chris

3.1. The energy deposition-Christoph



3.2. The choice of the target material-Chris-Benjamin-Gerard-Francis



3.3. The choice of the cooling method-Chris-Benjamin-Gerard-Francis

3.4. Conceptual design of the target-Chris-Benjamin-Gerard-Francis

3.5. Thermomechanical Analysis-Chris-Benjamin-Gerard-Francis

4. The horn-Marcos

4.1. Horn optimization-Andrea-Christoph



4.2. The energy deposition-Christoph



4.3. Horn cooling-Piotr

4.4. Horn conceptual design-Piotr-Marcos

4.5. Thermomechanical Analysis-Piotr

5. The horn and target integration-Piotr

5.1. Horn and target integration drawings-Piotr-Valeria

6. Conclusions