EUROnu WP2 Note 10-09

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

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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

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References