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Chapter 1

Introduction

So far the best physical description of the universe is provided be the Standard Model (SM). But through observations of different phenomena, which the SM can not explain, like neutrino oscillation [] and the rotation velocity in galaxies [], it is known, that the SM can not be a complete theory []. Therefore different experiments are in developement or are operating to search for new physics and new particles outside the SM. One possible future experiment to join the search for new physics is the proposed Search for Hidden Particle (SHiP) experiment. It is an intensity frontier experiment using the 400 GeV proton beam from CERNs Super Proton Synchrotron (SPS) and dumping it into a fixed target in order to observe rare events. **??** shows the overall structure of SHiP. At

Appendix A

List of acronyms

SM Standard Model

LHC Large Hadron Colider

SHiP Search for Hidden Particle

SPS Super Proton Synchrotron

SBT Surround Background Tagger

SiPM Silicon Photomultiplier

PCB Printed Circuit Board

ASIC Application Specific Integrated Circuit

DAC Digital to Analog Converter

ADC Analog to Digital Converter

APD Avalanche Photodiode

DAQ Data Acquisition

WOM Wavelengthshifting Optical Module

SPAD Single Photon Avalanche Diode

DC Dark Count

DCR Dark Count Rate

FPGA Field Programmable Gate Array

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