



Contribution ID: 1551 Contribution code: TUPC63

Type: **Poster Presentation**

Background mitigation concepts for Super-NaNu

Tuesday, 21 May 2024 16:00 (2 hours)

Super-NaNu is a proposed neutrino experiment as part of the SHADOWS proposal for the high intensity facility ECN3 in CERN's North Area. It aims to detect neutrino interactions downstream of a beam-dump that is penetrated with a 400 GeV high intensity proton beam from the SPS. The experiment would run in parallel to the HIKE and SHADOWS experiments, taking data with an emulsion detector. Simulations show that various combinations of muon backgrounds pose the major limiting component for NaNu operation. As muons will leave tracks in the emulsion detector, their flux at the detector location is directly correlated to the frequency of emulsion exchange and therefore with the cost of the experiment. Finding ways of mitigating the muon background as much as possible is therefore essential. In this paper, we present a possible mitigation strategy for muon backgrounds.

Footnotes

Funding Agency

Paper preparation format

LaTeX

Region represented

Europe

Primary author: STUMMER, Florian (European Organization for Nuclear Research)

Co-authors: KEYKEN, Alex (Royal Holloway, University of London); GOILLOT, Alice (European Organization for Nuclear Research); VISIVE, Ambre (European Organization for Nuclear Research); BARATTO ROLDAN, Anna (European Organization for Nuclear Research); RAE, Bastien (European Organization for Nuclear Research); BANERJEE, Dipanwita (European Organization for Nuclear Research); PAROZZI, Elisabetta (Universita Milano Bicocca); ANDERSEN, Emily (European Organization for Nuclear Research); METZGER, Fabian (European Organization for Nuclear Research); LANFRANCHI, Gaia (Istituto Nazionale di Fisica Nucleare); D'ALESSANDRO, Gian Luigi (European Organization for Nuclear Research); BERNHARD, Johannes (European Organization for Nuclear Research); NEVAY, Laurence (European Organization for Nuclear Research); GATIGNON, Laurent (Lancaster University); SUETTE, Lisa (European Organization for Nuclear Research); DYKS, Luke (European Organization for Nuclear Research); VAN DIJK, Maarten (European Organization for Nuclear Research); JEBRAMCIK, Marc

(Deutsches Elektronen-Synchrotron); DENIAUD, Marin (John Adams Institute); BRUGGER, Markus (European Organization for Nuclear Research); FRASER, Matthew (European Organization for Nuclear Research); DOBLE, Niels (European Organization for Nuclear Research); CHARITONIDIS, Nikolaos (European Organization for Nuclear Research); MURPHY, Robert (European Organization for Nuclear Research); SCHUH-ERHARD, Silvia (European Organization for Nuclear Research); GIBSON, Stephen (Royal Holloway, University of London); BOOGERT, Stewart (Cockcroft Institute); ZICKLER, Thomas (European Organization for Nuclear Research); STERGIOU, Vasiliki (European Organization for Nuclear Research); SHIELDS, William (Royal Holloway, University of London)

Presenter: STUMMER, Florian (European Organization for Nuclear Research)

Session Classification: Tuesday Poster Session

Track Classification: MC1: Colliders and other Particle and Nuclear and Physics Accelerators: MC1.A25 Beyond Colliders