4th Hardware Camp for Fast and Low-Light Detection

Self Introduction

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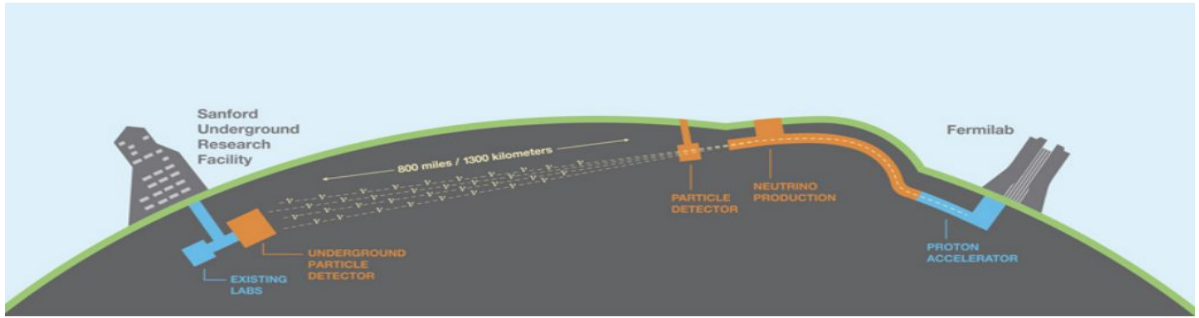
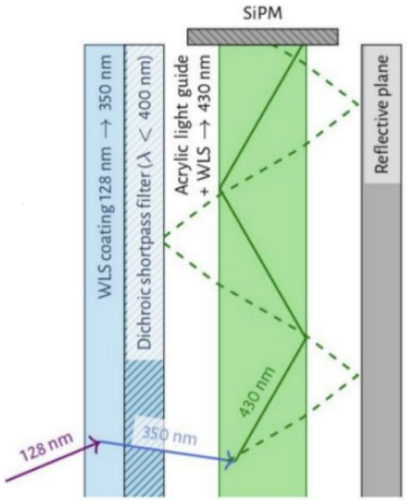
About Myself

- Second year PhD student in Experimental Neutrino Physics.
- Currently working on the DUNE experiment, a next-generation neutrino project at Fermilab.
- Focus: Supernova neutrinos detection and pointing capabilities.
- Interested in Detector Technologies and ML application in experimental physics.



DUNE Experiment

- Physics Goals: Neutrino Oscillation, BSM Physics and Supernova Neutrinos.
- DUNE will use liquid argon as detector medium for neutrino interactions.
- LAr VUV scintillation (λ = 128 nm) with two components: Fast (6 ns) and Slow (1.6 μs).
- Scintillation light helps in event localization & energy resolution.
- DUNE's photon detection system is essential for BSM searches like nucleon decay.



Research Interests

- Low-energy neutrino interaction, relevant for supernova and solar neutrinos.
- Photon detection techniques.
- Data acquisition and processing in real-time.

Relevance to Hardware Camp

- Great opportunity for hands-on experience in low-light detection.
- Understanding and optimizing fast and slow scintillation light detection.
- Advanced Technologies like FPGA, TimePix Detector, and their applications in neutrino physics experiments.

Thank You!!

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