

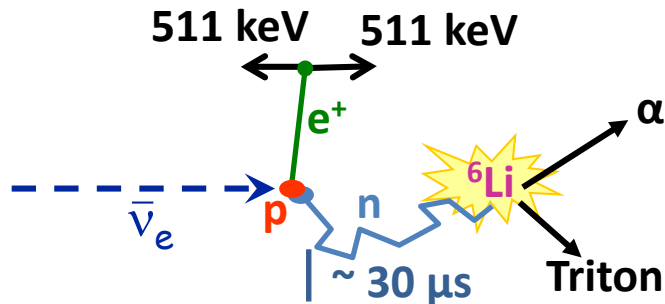
New Antineutrino Detection Techniques

Research Overview

Increase sensitivity for antineutrino detection and reactor monitoring.

- To monitor rate of Pu production in the core (for nuclear safeguards)
- To study the nature of the neutrino itself (does a 4th sterile neutrino exist?)

Antineutrino Signal in H₂O Scintillator



Potential Collaborations

Reactor antineutrinos for non-proliferation

- Determine direction of reactor source
- Reactor antineutrinos for science
 - Increased signal to background
 - Study neutrino oscillation, weak force, radioactive decay and origin of matter

Previous Dissertations

“Reconstructing the direction of reactor antineutrinos via electron scattering in Gd-doped water Cherenkov detectors”

Daniel Hellfeld (UC Berkeley, NSSC)

⇒ <http://arxiv.org/pdf/1512.00527.pdf>

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