

MDPH480/PHYS480/ASTR480/MAPH480 Research Projects 2009

Project Title: Do flashing LEDs in IceCube look like neutrino induced electromagnetic cascades?

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Abstract of the Proposed Research (use this page only)

IceCube is a neutrino observatory currently under construction at the South Pole. It is expected that IceCube will observe neutrino induced electromagnetic cascades produced when electron type neutrinos interact in ice contained within the instrumented volume of IceCube. To calibrate IceCube response to cascades we have deployed flashers (LEDs) in the ice that we hope will mimic the signature of a neutrino induced cascade. However we need to understand how well the flashers represent true cascades. This is the main objective of this project. The student will look at flasher data taken last year and compare them with Monte Carlo simulated cascades and Monte Carlo simulated flashers. The main result of the project will be a quantitative account of how well or how badly flashers do in mimicking the location and energy of true cascades.