Contribution ID: **85** Type: **Poster**

Simulation of the detector response of the 1-kton option of WATCHMAN

WATCHMAN (WATer CHerenkov Monitoring of AntiNeutrinos) is a new US based experiment that will exploit the low energy antineutrino signal from reactors, supernova and decay-at-rest antineutrino beams to pursue a broad physics program. WATCHMAN aims to be the first detector in the world to detect low energy antineutrinos in water, by adding a gadolinium dopant that increases the efficiency for the final-state neutron arising from the antineutrino interactions on protons in the water. An overview of the expected detector response to the different low-energy physics - including reactor antineutrinos, fast-neutron contamination, radionuclide contamination and U/Th contamination. The expected rates for each of these processes at the current preferred underground installation-site, the Fairport mine in Painesville Ohio, will also be presented. A focus on the unique advantages of the gadolinium dopant will be presented, this dopant enables WATCHMAN to significantly reduce the background contamination and allows a lower energy threshold compared to other Water Cherenkov Imaging detectors.

Primary author: Dr BERGEVIN, Marc (UC Davis)

Presenter: Dr BERGEVIN, Marc (UC Davis)

Track Classification: Reactor Neutrino Oscillations