



Poster session 2 – Tuesday 5 July

P2.024 Search for sterile neutrinos with IceCube DeepCore

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The DeepCore detector is a sub-array of the IceCube Neutrino Observatory that lowers the energy threshold for neutrino detection down to approximately 10 GeV. The low-energy data is used for a variety of studies including the recently published measurement of atmospheric neutrino oscillations using 3 years of data. The standard three-neutrino paradigm is tested by searching for an additional light ($\Delta m^2 \sim 1 \text{ eV}^2$) sterile neutrino. Sterile neutrinos do not take part in standard weak interactions, and therefore cannot be directly detected. However, they can mix with the three active neutrino states, which leaves an imprint on the standard neutrino oscillation pattern for atmospheric neutrinos with energies below 100 GeV. Using 3 years of the DeepCore data, we present an improved sensitivity to $|U_{\tau 4}|^2$ compared to the current most stringent limits.