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The Study of Neutrino Properties from Dark Matter Annihilations in the Sun RANJANI SARMA, Univ of Virginia, NOVA COLLABORATION — NOvA (NuMI Off-Axis ve Appearance) is an experiment studying a neutrino beam sent from Fermilab to northern Minnesota. The main goal of NOvA is to observe neutrino oscillations. NOvA can also be used for many other different experiments. We use upward-going muons to investigate the possibility of dark matter in the center of Sun. Weakly Interacting Massive Particles (WIMPs) are currently the main candidates for dark matter. We have been studying neutrino propagations from annihilations of WIMPS at the core of the Sun. WIMPSIM is a program that simulates WIMP annihilations in the Sun and then propagates the resulting neutrinos to the surface of the Earth. The data from WIMPSIM helps us study angular acceptance of neutrino yields. This will give us a better understanding of upward-going muons so we can more easily recreate them in a toy Monte Carlo.

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