

A large scintillator-based detector for neutrino physics and nucleon decay

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The capabilities of a 30 kton large scintillator-based underground detector are presented. For nucleon decay into charged kaons, such a detector would be much more efficient than the water Cherenkov technique since the daughter kaons are below Cherenkov threshold. Such modes are important in many SUSY theories. In addition, such a large detector would be an excellent follow-on to the KamLAND neutrino oscillation experiment, which is a 1 kton detector now being completed in Japan. Oscillation sensitivities for sites being considered for a U.S. National Underground Lab are presented.