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A proposed five kilo-ton Cherenkov scintillation detector at CJPL

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Summary

We propose to build a Cherenkov scintillation detector with five kilo-ton target mass in the China Jinping Underground Laboratory (CJPL). The deepest vertical overburden and the longest distance to any commercial nuclear power plants enable us to carry out advance low-energy neutrino experiments for solar neutrino, geo-neutrino and supernova neutrino physics studies. Simulation studies have been done on the physics sensitivities and background sources. We have made progress on the development of the slow scintillation technique and the optimization of the detector geometry. Results on a prototype detector running in CJPL are also presented.

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