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The Baksan Large Neutrino Telescope Project

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A large-volume liquid scintillator neutrino detector is proposed to develop at the Baksan Neutrino Observatory of Institute for Nuclear Research of the Russian Academy of Sciences in the North Caucasus. The detector will be located at the depth of 4700 m.w.e. (meter of water equivalent). A target mass of the detector will be 10 kt. This multipurpose detector is being developed to study primarily natural neutrino and antineutrino fluxes namely fluxes of solar neutrinos, geoneutrinos and neutrinos from other astrophysical sources. The project is aimed to have a record energy resolution which along with its location at the large depth and relatively far distance from operating nuclear reactors will allow reaching a record sensitivity to the natural neutrino and antineutrino fluxes. The project, if implemented, would be a successor of the Borexino experiment and other European projects like LENA. We report in the paper the present status of the project and describe some selective results of the project first stage - the detector prototype with 0.5 t liquid scintillator. Results of R&D for the project second stage with 5 t liquid scintillator are presented. Further perspectives of the project including 100 t prototype are discussed too.

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