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Status and perspectives of the Baikal-GVD project

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The second-stage neutrino telescope Baikal-GVD in Lake Baikal will be a research infrastructure aimed mainly at studying astrophysical neutrino fluxes by recording the Cherenkov radiation of the secondary muons and showers generated in neutrino interactions. The design for the Baikal-GVD neutrino telescope is an array of photomultiplier tubes each enclosed in a transparent pressure sphere to comprise an optical module (OM). The OMs are arranged on vertical load-carrying cables to form strings. The final configuration of telescope will consist of 27 clusters of strings –functionally independent subarrays, which are connected to shore by individual electro-optical cables. The prototyping/early construction phase of the Baikal-GVD project which aims at deployment and operation of the first Demonstration Cluster has been started in 2011. Demonstration Cluster will comprise eight 345 m long strings of optical modules –seven peripheral strings are uniformly arranged at a 60 m distance around a central one. Each string comprises 24 OMs spaced by 15 m at depths of 950–1300 m below the surface. Also the Demonstration Cluster will comprise an acoustic positioning system and an instrumentation string with equipment for array calibration and monitoring of environment parameters. An important

step on realization of the GVD project was made in 2013 by the deployment of the first stage of Demonstration Cluster which contains 72 OMs arranged on three 345 m long full-scale strings, as well as equipment of an acoustic positioning system and instrumentation string with an array calibration and environment monitoring equipment. This configuration has been upgraded to 5 string array with total of 112 OMs in 2014. Deployment of the Demonstration Cluster will be completed in 2015. The review of the design and status of the Demonstration Cluster construction will be presented.

Primary author: Prof. DZHILKIBAEV, Zhan-Arys (Institute for nuclear research, Moscow)

Presenter: Prof. DZHILKIBAEV, Zhan-Arys (Institute for nuclear research, Moscow)

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