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The status and astrophysics results of the Baikal-GVD neutrino telescope

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The Baikal-GVD neutrino telescope is a cubic-kilometer scale neutrino detector being constructed in Lake Baikal. Presently the detector array consists of 13 sub-arrays (clusters), including in total 114 strings holding 4104 optical modules. The telescope's sensitive volume for high-energy cascade detection has reached 0.6 kmˆ3. In this report we discuss status of the detector and present first physics results obtained using the data collected in 2018 – 2024. This includes a diffuse astrophysical neutrino flux measurement using cascade-like events, with a statistical significance exceeding 5 sigma. We also discuss Baikal-GVD results on the Galactic neutrino flux, as well as searches for point-like neutrino sources and multi-messenger transients.

Collaboration(s)

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