Evaluation of large area photomultipliers for use in a new Baksan Large Neutrino Telescope project

Tuesday, 13 July 2021 18:48 (12 minutes)

We present results of advance studies of large area photomultipliers (PMTs) of different types from several manufacturers for use in a new Baksan Large Neutrino telescope. At first, requirements for photodetectors to be used in the telescope were formulated. Parameters of 8-inch, 10-inch and 20-inch PMTs were thoroughly studied. 8-inch PMTs under studies were ET9350 from ET Enterprises, R5912 and R5912-100 from Hamamatsu Photonics. 10-inch PMTs –R7081 and R7081-100 and R7081-100-WA from Hamamatsu Photonics. 20-inch PMTs –R12860 from Hamamatsu Photonics and MCP-PMT from NNVT. Particular emphasis was done on measurements of photocathode sensitivity, single photoelectron response, TTS, dark current counting rate and afterpulses rate.

Subcategory

Experimental Methods & Instrumentation

Keywords

Neutrino detector; scintillation detector; PMTs

Collaboration

other Collaboration

Primary author: Mr USHAKOV, Nikita (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia)

Co-authors: Mr FAZLIAKHMETOV, Almaz (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Mr GANGAPSHEV, Albert (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Dr GAVRIN, Vladimir (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Mrs IBRAGIMOVA, Tatyana (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Mr KAZALOV, Vladimir (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Mr KOCHKAROV, Mahti (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Mr KUDRIN, Daniel (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Dr KUZMINOV, Valeriy (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Dr LUBSANDORZHIEV, Bayarto (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Mr LUKANOV, Arslan (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Mr MALYSHKIN, Yuri (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Mrs NOVIKOVA, Galina (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Dr PETKOV, Valeriy (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Mr SHIKHIN, Alexander (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312,

Russia); Mr VERETENKIN, Evgeniy (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Mr VORONIN, Dmitry (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia); Mr YANOVICH, Evgeniy (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia)

Presenter: Mr USHAKOV, Nikita (Institute for Nuclear Research of the Russian Academy of Science, Prospekt 60-letiya Oktyabrya 7a, Moscow 117312, Russia)

Session Classification: Discussion

Track Classification: Scientific Field: NU | Neutrinos & Muons