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Integration of Hyper-Kamiokande Electronics and Test in Super-Kamiokande

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Hyper-Kamiokande (HK) is a next generation neutrino experiment planned to start in 2027. The detector will be the largest ever water Cherenkov detector with 260kton water tank and more than 20k photomultiplier tubes (PMTs) on the wall. The detector's large scale and high performance require various challenges on the electronics and DAQ. The design of the HK electronics has been almost finalized, and final prototypes of the components were delivered in 2023.

The prototypes of the components were interconnected one by one, such as data flow path, clock synchronization path, slow control path and so on. After all, HK electronics were integrated into a system.

After the integration of the components in laboratory, the vertical slice setup of HK electronics was connected to HK Box&Line PMTs in quality checks facility for mass production PMTs. And the requirements of HK electronics were confirmed to be met.

Furthermore, the setup was set in Super-Kamiokande (SK) and connected to SK PMTs and HK PMTs which were installed in the SK tank. That was the first time for HK electronics to take data from water Cherenkov detector. HK PMT and HK electronics were confirmed to work together as a water Cherenkov detector. It's one of milestones for HK collaboration.

Minioral

No

IEEE Member

No

Are you a student?

No

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