

Scintillator upgrade of IceTop: An extension of the IceCube surface detector array

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Abstract content

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The IceCube Collaboration foresees to upgrade the present surface array (IceTop) with scintillation detectors.

This array will be used to mitigate the impact of snow accumulation on the reconstruction of cosmic-ray showers detected by IceTop. In addition it will increase the veto capabilities for high energy astrophysical and cosmogenic neutrinos of IceCube. Furthermore, it will serve as a R&D program for a possible future large-scale surface array. Two prototype stations with 7 scintillation detectors each showcasing technological advances have been developed and were deployed at the South Pole in January 2018. Each scintillation detector features 1.5 m² of plastic scintillators and wavelength-shifting fibers which are read out by Silicon Photomultipliers.

The detector design, the operation status, first measurements and prospects of the upgrade will be presented in this contribution. In addition, the science case of the array will be discussed.

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