

Light output distribution in scintillator strips with wave length shifting fibers of DANSS spectrometer

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DANSS is a highly segmented plastic scintillator detector, which use scintillator strips with a Gd-loaded reflective cover to detect reactor antineutrino using inverse beta-decay. Light is collected with wave length shifting fibers (3 per strip) placed in grooves. Therefore it could be significantly nonuniform distribution of light output. Transversal profile of light output was studied in ITEP at the test bench consisting of proportional chambers and scintillator strips. Tracks of cosmic particles, which crossed chambers, were reconstructed with high accuracy, whereby transversal profiles of light output were built with step 1 mm for six scintillator strips. This result is important for calibration of DANSS and method could be useful in constructing similar detectors.

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