

AN ANALYTIC TECHNIQUE FOR THE ESTIMATION OF THE LIGHT YIELD OF A SCINTILLATION DETECTOR

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A simple model for the estimation of the light yield of a scintillation detector is developed under general assumptions and relying exclusively on the knowledge of its optical properties. The model allows to easily incorporate effects related to Rayleigh scattering and absorption of the photons. The predictions of the model are benchmarked with the outcomes of Monte Carlo simulations of specific scintillation detectors. The case of a real liquid argon based detector is explicitly treated and the predicted light yield is compared with the measured value.

Primary author: Dr SEGRETO, Ettore (Laboratori Nazionali del Gran Sasso)

Presenter: Dr SEGRETO, Ettore (Laboratori Nazionali del Gran Sasso)

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