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Study of output spectrum and optimization of the composition of toluene-based liquid scintillator

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Liquid scintillator is widely used as a medium for the detection of charged particles for numerous applications in science, medicine, and other areas. The composition of scintillator affects not only its performance, but also the cost of the components. The spectrum of the output scintillator light also affects what detectors can be used in conjunction with this scintillator formula. Optimization of this composition provides the ability to design particle detectors with a certain light yield and emission spectra of the detection medium or maximize the light yield while optimizing the expenses. This work presents the component optimization for the toluene-based liquid scintillator that uses PPO as a fluor and POPOP as a secondary shifter. The light yield vs concentration and the changes in the output spectra will be presented. Future plans include the light attenuation measurements.

In-person participation

No

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