

# **An experimental setup to study the activation of cosmogenic nuclides**

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Cosmic rays effects on materials over long periods of time are of significant concern when designing low-background physics experiments. To probe the beta decay of certain materials caused by muon activation, a new experiment is constructed at Tennessee Technological University. In this setup, muons are detected using eight scintillator detectors, beta decay electrons using scintillator paddles, gamma rays using germanium detectors and neutrons using pulse shape discrimination plastic.

In this study, photomultiplier tubes are reverse-engineered for possible implementation into the setup. The gain-matching process of photomultiplier tubes within the experimental setup is also explored within this study.