

Abstract Submitted  
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**Exploring Neutron Dosimetry.** JOHN KEITH — Despite the relative difficulty detecting neutrons, there are several possible considerations we have to make when designing our neutron dosimeter. A polyethylene layer could be put to interact with neutrons to produce a proton or heavy ion which would then interact with a charged particle sensitive scintillator or have a scintillator directly sensitive to neutrons such as a liquid scintillator or one made of ZnS(Ag) doped hydrogenous plastic. This can then be put into connection with a phototube, or, as our choice was, a photocathode followed by an array of Gaseous Electron Multiplier (GEM) foils. The final component is the electronics readout catered to the specific application. We are going with a simple quad readout (4 squares of equal size) to determine the homogeneity of the incident neutron beam created in the 88-inch cyclotron at LBNL. This configuration consisting of ZnS(Ag) doped hydrogenous plastic, a photocathode sensitive to 450nm light (wavelength emitted by the scintillation), an array consisting of 4 GEM foils, and the electronics readout will be used for fast neutrons of about 14MeV.

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