## Abstract Submitted for the OSS15 Meeting of The American Physical Society

A compound crystal with film scintillator for electron detection GEORGE MCKINNEY, WARREN MCDONALD, Lock Haven Univ — Yttrium Aluminum Garnets (YAG) and Yttrium Aluminum Perovskite (YAP) are widely used as electron detectors. This application requires a top conducting layer which hinders their application at low electron energies. We have developed a layer of zinc tungstate which delivers conductivity large enough to prevent charging while still being an efficient scintillator. For better coupling between the two systems we have studied their optical properties. Ce doping is an essential element in YAP and YAG in order for them to be efficient scintillators. We have studied the Ce content and we show that higher Ce content leads to reabsorption in the YAP scintillators. These details were revealed by using photoluminescence emission and excitation spectroscopy. The absorption spectrum for the YAG scintillators coincides with the excitation for the main emission lines. The optical studies of the zinc tungstate films and a single crystal have shown that the films are more efficient light emitters. We have integrated the zinc tungstate films with YAG scintillators and we will report on the performance of this compound scintillator. It is expected that it will perform

well at low and high electron energies, which makes it a very cost effective platform

for electron detectors.

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