

Abstract Submitted  
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**Modeling Photoemission of Electrons in a High-Intensity Laser Focus** GRAYSON TARBOX, RYAN SANDBERG, JUSTIN PEATROSS, MICHAEL WARE, Brigham Young University — We computationally model the interactions of electrons in a helium atom with an intense laser field. First quantized and second quantized theories differ in their predictions for how these electrons radiate while interacting with a strong laser field. It turns out that a classical model for electrons in helium captures many features found in the second quantized radiation theory. We use this type of classical model to study the expected volume wherein electrons are anticipated to achieve a significant red shift in their emission spectrum and also to explore radiation during the ionization process. We then determine the expected number of detectable photons to compare with the results of an ongoing experiment.

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