## Abstract Submitted for the DPP16 Meeting of The American Physical Society

Dense gamma-ray and pair creation using ultra-intense lasers EDISON LIANG, WILLIE LO, Rice University, HANNAH HASSON, Rice University and University of Texas at Austin, GILLISS DYER, University of Texas at Austin, TAYLOR CLARKE, None, FABIO FASANELLI, KELLY YAO, ILIJA MARCHENKA, Rice University, ALEXANDER HENDERSON, Mississippi State University, ANDRIY DASHKO, University of Texas at Austin, YULING ZHANG, St. Johns School, TODD DITMIRE, University of Texas at Austin — We report recent results of gamma-ray and e+e- pair creation experiments using the Texas Petawatt laser (TPW) in Austin and the Trident laser at LANL irradiating solid high-Z targets. In addition to achieving record high densities of emerging gammarays and pairs at TPW, we measured in detail the spectra of hot electrons, positrons, and gamma-rays, and studied their spectral variation with laser and target parameters. A new type of gamma-ray spectrometer, called the scintillator attenuation spectrometer (SAS), was successfully demonstrated in Trident experiments in 2015. We will discuss the design and results of the SAS. Preliminary results of new experiments at TPW carried out in the summer of 2016 will also be presented.

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