An overview of Laser-Produced Relativistic Positrons in the Laboratory\textsuperscript{1} BRANDON EDGILL, Univ of California - San Diego, GERALD WILLIAMS, HUI CHEN, Lawrence Livermore National Laboratory, FARHAT BEG, Univ of California - San Diego — The production of relativistic positrons using ultraintense lasers can facilitate studies of fundamental pair plasma science in the relativistic regime and laboratory studies of scaled energetic astrophysical mechanisms such as gamma ray bursts. The positron densities and spatial scales required for these applications, however, are larger than current capabilities. Here, we present an overview of the experimental laser-produced positron results and their respective modeling for both the direct laser-irradiated process and the indirect process (laser wakefield accelerated electrons irradiating a high-Z converter). Conversion efficiency into positrons and positron beam characteristics are compared, including total pair yield, mean energy, angular divergence, and inferred pair density for various laser and target conditions. Prospects towards increasing positron densities and beam repetition rates will also be discussed.

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