

Abstract Submitted  
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**Spectrum of escaping fast electrons in high intensity laser solid target interaction**<sup>1</sup> MINGSHENG WEI, FARHAT BEG, University of California, San Diego, RICHARD STEPHENS, General Atomics, TOSHINORI YABUUCHI, University of California, San Diego — For fast ignition of inertial confinement fusion study, hot electron temperature ( $T_h$ ) is a critical parameter required to be determined in experiments. In high intensity laser solid target experiments, the  $T_h$  is commonly obtained directly from the vacuum electron spectrum measurement. However, whether the vacuum electron spectrum can really represent the spectrum of the fast electrons produced in high intensity laser target interaction is still an open question. In this work, we attempt to address this issue. Hybrid particle-in-cell (PIC) code LSP is used to systematically study the spectrum of the escaping fast electrons under various laser and target parameters. Preliminary results have suggested that the vacuum electron spectrum is strongly modified by sheath field at the target rear surface. With a simple initial one-temperature spectrum for the produced fast electrons, the spectrum of the escaping fast electrons has a reduced temperature.

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