Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Revisiting hot electron generation in ignition-scale hohlraums[1] WILLIAM KRUER, CLIFF THOMAS, DAVID STROZZI, NATHAN MEEZAN, OTTO LANDEN, HARRY ROBEY, Lawrence Livermore National Laboratory — Recent work[2] invoking hot electron preheat in NIC ignition experiments is motivating a fresh look at hot electron generation in ignition-scale hohlraums. Various mechanisms for high energy electron generation are considered, with particular attention to their time dependence and the potential role of the two plasmon decay instability in the main laser pulse.[3] The energy at risk calculations[4] are updated to include the effects of cross beam energy transfer on the time-dependent energy and intensity of the inner beams as well as improvements in the calculated plasma conditions. The generation of hot electrons by the Raman-scattered light driving the two plasmon decay instability and the effect of the Weibel instability on the propagation of the hot electrons are also briefly considered. Uncertainties in interpreting the energy in hot electrons from hard x-ray measurements and techniques to reduce hot electron generation are discussed.

[1]This work was performed under the auspices of the Lawrence Livermore National Security, LLC, (LLNS) under Contract DE-AC52-07NA27344.
[2]H. F. Robey, *et. al.*, Phys. Plasmas 21, 022703 (2014)
[3]William L. Kruer, Nathan Meezan, S. P. Regan, *et. al*,, Journal of Physics Conference Series 244, 022020 (2010)
[4]S. P. Regan, *et. al*,. Phys. Plasmas 17, 020703 (2010)

William Kruer
Lawrence Livermore National Laboratory

Date submitted: 10 Jul 2014 Electronic form version 1.4