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Effect of Laser Wavelength and Ablator Material on Hot Electron Generation in High Power Laser Plasma Interaction at Shock Ignition High Intensity Conditions[1] M.S. WEI, N.B. ALEXANDER, General Atomics, San Diego, C.M. KRAULAND, S. ZHANG, F.N. BEG, Univ. California, San Diego, W. THEOBALD, R. BETTI, LLE, Univ. Rochester — Hot electrons with energies <100 keV have been found to augment ablation pressure leading to Gbar shocks in strong spherical shock experiments on OMEGA*. To study this potential benefit at shock ignition-relevant high intensities ($\sim 10^{16}$ W/cm^2), we have conducted an experiment using the high-energy OMEGA EP laser system to examine the effect of laser wavelength, intensity and ablator material on hot electron generation and energy coupling. Targets are multilayered planar foils consisting of Cu and Al layers with an ablator made of either plastic (CH) or lithium. The target is first irradiated by multi-kJ UV beams at low intensity to produce a long scalelength, hot plasma, as is the case in the shock ignition regime. Correspondingly, this is followed by the injection of the high intensity UV or IR main interaction pulse. The resultant energy, spectrum and angular distributions of the hot electrons are measured via their induced Cu fluorescence emission and the bremsstrahlung radiation. Details of the experiment and results will be presented. *W. Theobald et al., Phys. Plasmas 22, 056310 (2015).

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