Abstract Submitted
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Development of high-power laser platforms to study metal ejecta interactions[1] ALISON SAUNDERS, SUZANNE ALI, JON EGGERT, TOMORR HAXHIMALI, CHANNING HUNTINGTON, LEO KIRSCH, BRANDON MORGAN, FADY NAJJAR, HYE-SOOK PARK, Lawrence Livermore Natl Lab, HANS RINDERKNECHT, Laboratory for Laser Energetics — Understanding the interactions of ejecta with surfaces and other ejecta has relevance to fields that seek to study spacecraft shielding, planetary impacts, and materials physics. The literature contains many examples of experiments and modeling efforts that examine the underlying physics of ejecta generation, but there are very few examples of experiments that measure the effects of ejecta interactions. In the past, these experiments have been limited to single-interaction studies on facilities such as gas guns. We choose to extend ejecta interaction studies to high-power laser facilities to take advantage of the higher repetition rates, the repeatability of drive conditions, and the advanced time-resolved diagnostics suites. We present results from initial experiments on the OMEGA and OMEGA-EP lasers and report on the development of platforms to study ejecta interactions. The experiments make use of micron-sized titanium and tin particles accelerated by high-power laser drives.

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Alison Saunders
Lawrence Livermore Natl Lab

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