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New scaling laws for ion acceleration from the enhanced 200TW Trident laser at LANL KIRK FLIPPO, B. ALBRIGHT, Los Alamos National Laboratory, T.E. COWAN, Forschungszentrum Dresden, J.C. FERNANDEZ, S.A. GAILLARD, D.C. GAUTIER, Los Alamos National Laboratory, K. HARRES, Technical University of Darmstadt, B.M. HEGELICH, Los Alamos National Laboratory, A. HENIG, Maximilian-Ludwig Univeristy, R.P. JOHNSON, Los Alamos National Laboratory, D. KIEFER, Maximilian-Ludwig University, J.L. KLINE, S. LETZRING, Los Alamos National Laboratory, F. NUERNBERG, M. ROTH, Technical University of Darmstadt, J. RASSUCHINE, Forschungszentrum Dresden, M. SCHOLLMEIER, Technical University of Darmstadt, R.C. SHAH, T. SHIMADA, J. WORKMAN, L. YIN, Los Alamos National Laboratory, N. VUTISALCHAVAKUL, Ohio Wesleyn University — Recent experiments on the 200 TW Trident have shown the importance ASE and prepulse contrast play in ion acceleration. Ion energies above 50 MeV have been observed even at modest intensities, on par with the Nova Petawatt (Snavely 2002) at half the intensity and energy, with an intrinsic laser ASE contrast of $> 10^{-7}$, yielding efficiencies of greater than 5% into ions above 4 MeV. Scalings for spot size, laser energy, target thickness, and laser pulse duration are presented and compared to other empirical scalings and theory, including the influence of contrast.

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