

Abstract Submitted
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Relativistic Electrons from Slab Targets Interacting Strongly with Intense Light in Vacuum from High-Contrast Laser Pulses T.W. JOHNSTON, INRS-EMT, L. NIKOLIC, Now Univ. Alberta, Edmonton, AB, Canada, Y. TYSHETSKIY, Now Univ. Sydney, Sydney, NSW, Australia, F. VIDAL, INRS-EMT, Varennes, QC, Canada — When light of electron-relativistic intensity in several-cycle laser pulses are obliquely incident on slab targets with extremely low pre-pulse energy, copious amounts of high laser harmonic light emerge [1] (See also ongoing work at the ALLS 200 TW Ti-Saph laser at INRS EMT. (Pulses are 24 fs at 10 Hz with 10^{-10} contrast, even without plasma mirrors).) 2-D PIC (OSIRIS code at INRS) simulations [2] (and earlier work by Naumova et al. [3] have shown that intense beams of electrons are not only injected into the target [2] but that significant relativistic electrons are also emitted more or less along with the emitted light. These frontally-emitted relativistic electrons emerge from the narrow regions of intense current responsible for the harmonics [2] and interact strongly with the incident and emitted light. [1] B. Dromey et al Nature Phys. Lett., 2, 456-459 (2006). [2] T. Johnston et al. Poster YP8 48, Bull. Amer. Phys. Soc 52, 16 November (2007). [3] N. Naumova, et al., Phys. Rev. Lett. 93, 195003 (2004). Note: This is work meant to be reported in 2008, but was not for medical reasons. This is likely to be the last Bulletin Abstract submitted by the lead author.

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