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WITHDRAWN–Ponderomotive-based temperature sampling of relativistic electron beams ANTHONY VALENZUELA, ANATOLY MAKSIM-CHUK, University of Michigan, RAHUL SHAH, Laboratoire Optique Appliquee, SCOTT SEPKE, SUDEEP BANERJEE, DONALD UMSTADTER, University of Nebraska - Lincoln — The physical process that produces an electron beam from self-modulated laser wakefield acceleration evolves rapidly. This is due to the growth of the plasma wave that creates the acceleration structure¹. Our previous work² has demonstrated the deflection of an ultrafast electron beam via the ponderomotive force of a second laser pulse at a counter-propagating angle. The strength of the deflection is related to the energy of the electron and provides a means to spectrally resolve energy components of a polychromatic electron beam. By varying the interaction time and observing the resulting deflected electron beam, we can relate the time delay to a temperature measurement of a section of the electron beam. This provides a means to more closely examine variations of electron beam temperature temporally, providing insight into the physical processes in acceleration.

1. S. P. Leblanc, et al. Phys. Rev. Lett. 77, 5381 (1996)

2. S. Banerjee, et al. Phys. Rev. Lett. 95, 035004 $\left(2005\right)$

Anthony Valenzuela University of Michigan

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