

Abstract Submitted
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Studies of Electron Transport Via Transition Radiation C. BELLEI, S. NAGEL, L. WILLINGALE, S. KNEIP, S.P.D. MANGLES, A.E. DANGOR, Z. NAJMUDIN, K. KRUSHELNICK, Imperial College London, S. KAR, B. DROMEY, K. MARKEY, P. SIMPSON, M. ZEPF, Queen's University of Belfast, R.J. CLARK, J. GREEN, D. NEELY, P. NORREYS, Rutherford Appleton Laboratory, UK, D. CARROLL, P. MCKENNA, University of Strathclyde, Glasgow — Measurements of electron transport through solid targets have been performed at the Vulcan Petawatt Laser Facility (Rutherford Appleton Laboratory, UK) by looking at the second harmonic of the laser frequency ($\lambda_L=1054$ nm) emitted at the rear side of the targets. The emission, that we mainly attribute to coherent transition radiation, is not compatible with a ballistic model of electron transport. The possibility of collimation and even coalescence of the relativistic electrons will be discussed. The radiation also exhibits a polarization dependence, consistent with the properties of transition radiation. The possibility of measuring the polarization state of the transition radiation in order to determine the direction of the fast electrons as they cross the plasma-vacuum interface will be further discussed.

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