

Abstract Submitted
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Particle acceleration studies with intense lasers and advanced light sources C.D. MURPHY, SUPA - University of Edinburgh, R.J. GRAY, D.A. MACLELLAN, D. RUSBY, P. MCKENNA, SUPA - University of Strathclyde, C.P. RIDGERS, University of York, N. BOOTH, A.P.L. ROBINSON, L. WILSON, J.S. GREEN, STFC - Rutherford Appleton Laboratory — The interaction of lasers with matter is a subject which has progressed rapidly over the last two decades as higher intensity lasers are found to have possible applications in inertial fusion, laboratory astrophysics and ion acceleration for oncology or ultrafast proton probing. All of these applications require a good understanding of laser-electron coupling and fast electron transport in solid targets which has proven difficult to diagnose. Here we present data from an experiment carried out on the Astra Gemini laser system at STFC - Rutherford Appleton Laboratory, where novel targets and diagnostics illuminate the complex processes at play. An outline of how x-ray free electron lasers may further expand our understanding of such processes will also be described.

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