Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Understanding laser-solid interactions at ultra-high intensities C.D. MURPHY, University of Edinburgh, UK, R.J. GRAY, D.C. CARROLL, D.A. MACLELLAN, H. POWELL, G.G. SCOTT, University of Strathclyde, UK, C.P. RIDGERS, University of Oxford, UK, C.S. BRADY, University of Warwick, UK, D. NEELY, J.S. GREEN, N. BOOTH, STFC - Rutherford Appleton Laboratory, P. MCKENNA, University of Strathclyde, UK — The interaction of matter with lasers is a subject which has progressed rapidly over the last two decades as higher intensity lasers have opened the door to nonlinear and then relativistic interactions such that applications in ion acceleration and x-ray backlighting sources have become a clear possibility. Until recently, lasers capable of reaching the highest intensities ($\sim 10^{21}\mathrm{Wcm}^{-2}$) have been glass-based systems with a low shot rate making detailed studies prohibitively time consuming. The development of petawatt-class Ti:Sapphire lasers such as Astra Gemini at STFC - Rutherford Appleton Laboratory, has made the systematic studies required to understand such interaction physics feasible. One such experiment on the Astra Gemini laser will be presented. The photon and particle diagnostics used will be explained and their results presented.

C.D. Murphy
University of Edinburgh, UK

Date submitted: 19 Jul 2012 Electronic form version 1.4