



John Adams Institute for Accelerator Science

John Adams Institute for Accelerator Science Lecture Series

Thursday 23rd May 2013 at 2:30pm
Fisher Room, Denys Wilkinson Building

Ultrafast lasers and Terahertz Radiation for Accelerator Diagnostics and Beam Manipulation

The lecture will be delivered by

Steven Jamison
Accelerator Science & Technology Centre,
STFC Daresbury Laboratory

Abstract: Single pass FEL's & planned linear colliders have demanding requirements for short duration bunches, in some cases reaching down to the few-femtosecond level. Requirements for the timing distribution and accelerator system synchronisation are similarly pushing into the femtosecond regime. Ultrafast lasers have a significant role to play in addressing these needs, and ASTeC has a number of research activities in this area. Topics to be discussed include the extension of electro-optic temporal profile diagnostics to a 20fs resolution capability, while simultaneously improving their reliability; the development of optical beam arrival monitors, with examples of their application to stability measurements on the ALICE energy recovery linac; and a concept for the resynchronisation or manipulation of beams using laser driven terahertz radiation. 'Conventional' diagnostics for the CLARA FEL test facility will also be discussed.