



Contribution ID: 1279

Type: Oral

Optical Imaging of the Self Magnetic Pinch Diode on the Merlin IVA

Thursday 27 June 2019 11:15 (15 minutes)

The Merlin IVA has recently completed its commissioning phase at the Technology Development Centre at AWE Aldermaston, where it has demonstrated reliable and consistent Pulsed Power operation which has enabled the demonstration of x-ray performance significantly above requirements. As part of the commissioning the opportunity was taken to take time resolved imaging of the optical emission from the Self Magnetic Pinch (SMP) diode which have revealed new phenomena.

This presentation will detail how the optical images were captured, a challenging task as this was fielded as a secondary diagnostic, using a Photek Ultra 8 camera which can capture individual images down to a 2ns exposure. A selection of the images captured will be presented and discussed, correlating the data with other data captured on each individual shot.

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Session Classification: 3.2 Intense Electron and Ion Beams

Track Classification: 3.2 Intense Electron and Ion Beams