Abstract Submitted
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Commissioning of the Orion Laser system STEVEN JAMES, COLIN BROWN, DAVID DREW, STUART DUFFIELD, STEPHEN ELSEMERE, JIM FYRTH, MARK GIRLING, EDWARD GUMBRELL, MATTHEW HILL, DAVID HILLIER, NICHOLAS HOPPS, MICHAEL NORMAN, KEVIN OADES, JAMES PALMER, STEFAN PARKER, PAUL TREADWELL, DAVID WINTER, DAVID HOARTY, AWE Aldermaston, ORION LASER COMMISSIONING TEAM — We present data collected in a recent series of shots taken to commission the Orion laser system. Ten long pulse (LP, nanosecond pulse length) and two short pulse (SP, picosecond pulse length) laser beams were fired onto a series of metal and plastic foils and data recorded. X-ray images of the laser plasma interaction show LP spot sizes of less than 100μm with >400J of 351nm on target, consistent with wavefront measurements. Picosecond pulses operating at powers of 500TW were used to generate ion beams with large numbers of energetic (multi-ten's of MeV) protons, indicating a high focussed intensity and energetic electron acceleration. Thick-target hard X-ray dosimetry measurements were made to prove the effectiveness of the shielding. An X-ray streak camera was used to synchronise all twelve beams to within +/-50ps of each other, and all twelve beams were fired simultaneously onto a target.

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