

Abstract Submitted  
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**Development of a Continuous multi-thousand shot electron beam pumped KrF rep-rate laser for fusion energy**<sup>1</sup> PATRICK M. BURNS, Research Support Instruments, Lanham, MD 20706, MATT MYERS, JOHN D. SETHIAN, MATTHEW F. WOLFORD, JOHN L. GIULIANI, ROBERT H. LEHMBERG, Plasma Physics Division, Naval Research Laboratory, Washington DC 20375, STUART SEARLES, Research Support Instruments, Lanham, MD 20706, MOSHE F. FRIEDMAN, FRANK HEGELER, Commonwealth Technologies Inc., Alexandria, VA 22315, REGINALD JAYNES, Science Applications International Corporation, McLean, VA 22102 — The Electra laser system is currently being developed at the Naval Research Laboratory to serve as a test bed for laser driver technologies needed for an inertial fusion energy power plant. 730 J oscillator results as well as advancement of the laser physics and the pulse power technologies give us projections of >7% wall plug efficiency for an IFE system. The Electra main amplifier in oscillator configuration has run continuously at 1 Hz, 2.5 Hz, and 5 Hz for multi-thousand shot runs. This paper will discuss recent results of the Electra program at the Naval Research Laboratory including measurements of the main amplifier's focal profile. Issues addressed will include development paths for cathode, window coating, and foil durability to attain the durability required for a fusion power plant.

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