Conceptual Design on kilo-Joule Laser Driver for Inertial Fusion Mini-Reactor CANDY

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A kilo-Joule class diode-pumped solid-state laser (kJ-DPSSL) has been conceptually designed for an inertial fusion mini-reactor CANDY. The CANDY which is an integrated repetitive mini-reactor system has been suggested for feasibility study of laser fusion technologies. Key components which construct kJ-DPSSL driver have been technologically and economically assessed based on our fusion research.

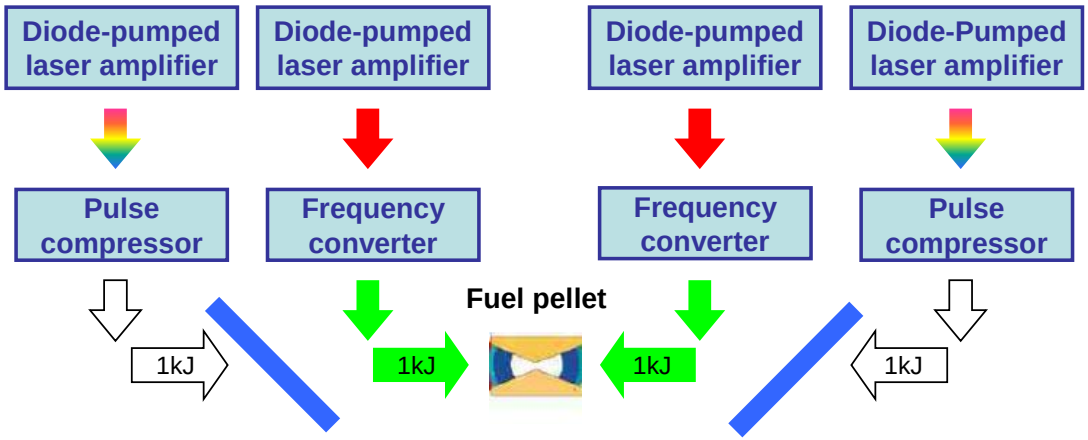

FIG. 1. Conceptual design of CANDY driver.

TABLE I: REQUIRED SPECIFICATIONS FOR CANDY DRIVER.

Parameter	Implosion laser	Heating laser
Energy per beam	1 kJ	
Beam number	2 beams	
Repetition rate	10 Hz	
Pulse duration	Tailored nano second	Pico or femto second
Spectrum	Dispersion	Broad band over 1 nm