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A High-Energy and Highly Repetitive fs/ps Laser Using Optical Parametric Chirped-Pulse Amplification with a ns Beam Combined Pumping Laser for Fast Ignition

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The authors propose the high-energy and high repetitive fs/ps laser system which uses the output beam of a coherent beam combination laser using stimulated Brillouin scattering phase conjugate mirrors (SBS-PCMs) as the pump beam of optical parametric chirped-pulse amplification (OPCPA). To verify the feasibility of the OPCPA system, the authors will utilize 4 kW(4 x 0.1 J @10 kHz/10 ns) Kungang laser for the pump beam of the OPCPA. The authors expect that fast ignition can be realized with the coherent-beam combination laser for compression and the fs/ps laser using the OPCPA system for ignition.

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