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## Unified Studies of Fast-ignition Scheme Fusion with Counterbeam Configuration

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The recent key physics of the laser fusion is how to make hot sparks for the alpha burning in the dense core. The fast ignition is expected to form a hot spark even with a non-uniform illumination configuration, such as with a counter-illumination one. By using both a high-repetition rate 10 J laser and a single-shot kJ laser, we have proposed and demonstrated a new concept for the fast-ignition scheme fusion, where main beams implode a shell target with counterbeam configuration and ultraintense lasers with the same configuration drive either hot electrons or ions or both, which has directly heated the core. Shock waves driven by ultraintense lasers are also powerful candidates for the core heating and are investigated. Combining these three fast-ignition schemes, we are demonstrating both the implosion and ignition to work well with counterbeam configuration.

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