

Abstract Submitted  
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**Generation of Solid Density Ar Fiber Targets for High-Repetition Intense Laser Pulse Interaction with Overdense Plasma**<sup>1</sup> DONGHOON KUK, YAN TAY, HOWARD MILCHBERG, KI-YONG KIM, University of Maryland, College Park — Recently the interaction of high-intensity laser pulses with matter has been studied in the purpose from understanding basic physical sciences to nuclear fusion energy source application. Solid thin foil targets are generally used to create overdense plasma. However, these thin foil targets are favorable for single shot experiments, and the target surface condition is not uniform over shots. By contrast, atomic or molecular clusters with solid intra-particle densities can be used for multi-shot or high-repetition-rate experiments, but those targets generate underdense plasma within the laser focal volume. Here, we present an experimental study of new type of solid targets, solid-density Ar fibers ( $\sim 50$  micron diameter) continuously generated from cryogenically cooled capillary nozzles, for high-intensity laser experiments at a 1 kHz repetition rate.

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Ki-Yong Kim  
University of Maryland, College Park

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