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Launching High Density, High Velocity Plasma Jet with A Ring of Laser Beams WEN FU, EDISON LIANG, Rice University, MILAD FATENEJAD, DONALD LAMB, University of Chicago, MICHAEL GROSSKOPF, R. PAUL DRAKE, University of Michigan, HYE-SOOK PARK, BRUCE REMINGTON, Lawrence Livermore National Laboratory — We propose a novel way of producing high Mach number, highly collimated plasma jets with multiple intense laser beams irradiating a planar plastic target. Our high resolution radiative hydrodynamics simulations show that these supersonic jets can be formed when the focal spots of those beams are somewhat separated from each other instead of all focusing on the center of the target. We carry out runs with various degrees of beam separation and study their effects on the properties of produced jets. Relevance to astrophysical jets and implication for laboratory collisionless shock experiment are also discussed.

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