

Collisionless Shock Experiments Using NIF

Edison Liang¹, Bruce Remington², Anatoly Spitkovsky³, Gennady Shvets⁴

¹*Rice University, Houston, TX, liang@rice.edu*

²*LLNL, Livermore, CA, remington2@llnl.gov*

³*Princeton University, Princeton, NJ, anatoly@astro.princeton.edu*

⁴*University of Texas at Austin, Austin, TX, gena@physics.utexas.edu*

We discuss proposals for performing collisionless shock experiments on NIF using both the long pulse and short pulse (ARC) lasers. Both mildly relativistic and highly relativistic shocks can in principle be created using NIF. We will explore the parameter space of such shock experiments and study the scaling of laboratory results to astrophysical shocks. Sample PIC simulation results of such shock experiments will be presented.