Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

**Expectations and results from the first NIF beryllium shock timing experiment**[1] D.C. WILSON, S.A. YI, A.N. SIMAKOV, Los Alamos National Laboratory, H.F. ROBEY, D.E. HINKEL, J.E. RALPH, D.J. STROZZI, J.L. MILOVICH, Lawrence Livermore National Laboratory, J.L. KLINE, R.E. OLSON, N.S. KRASHENINNIKOVA, Los Alamos National Laboratory, L. BERZAK HOPKINS, Lawrence Livermore National Laboratory, T.S. PERRY, G.A. KYRALA, S.H. BATHA, Los Alamos National Laboratory — The first NIF beryllium experiments are based on the highly successful hi-foot implosions fielded using plastic capsules. A VISAR diagnosed shock velocities and timing in a liquid DD filled Be capsule in both polar and equatorial directions. The laser pulse contains a 28 TW picket, a low power trough, a $2^{nd}$ 45 TW pulse, and a $3^{rd}$ high power pulse. To avoid laser damage from SBS backscatter, the $3^{rd}$ pulse has 250TW inner beams and 350TW outer beams, The total laser energy is only 0.58 MJ. First shock breakout times at the pole and equator determine inner cone vs outer cone power fractions in the picket. Comparing measured and calculated shock velocities gives picket and $2^{nd}$ pulse drive multipliers. The picket laser power will adjust the first shock to 28 $\mu$m/ns. Cone fraction changes to the $2^{nd}$ pulse make the $1^{st}$ and $2^{nd}$ shocks merge simultaneously at pole and equator. The timing the $2^{nd}$ pulse adjusts merger depth. The second Be experiment, a symmetry capsule with more energy, will incorporate these changes.

[1]Funded by the US-DOE

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No Company Provided

Date submitted: 11 Jul 2014 Electronic form version 1.4