Abstract Submitted
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Progress in Ion Beam Driven High Energy Density Physics and Heavy Ion Fusion[1] J.J. BARNARD, R.H. COHEN, A. FRIEDMAN, D.P. GROTE, S.M. LUND, L.J. PERKINS, W.M. SHARP, LLNL, B.G. LOGAN, J. ARMIJO, F.M. BIENIOSEK, J.E. COLEMAN, E. HENESTROZA, E.P. LEE, M. LEITNER, R.M. MORE, P. NI, P.K. ROY, P.A. SEIDL, J.-L. VAY, W.L. WALDRON, A. ZYLSTRA, LBNL, R.C. DAVIDSON, PPPL, E.P. GILSON, LBNL, I. KAGANOVICH, H. QIN, PPPL — Recently, the U.S. heavy ion fusion science program has made significant experimental and theoretical progress in simultaneous transverse and longitudinal beam compression, ion-beam-driven warm dense matter and direct drive fusion target physics. First experiments combining radial and longitudinal compression of intense ion beams propagating through background plasma resulted in longitudinal compression by factors of over sixty and transverse focusing to focal spot sizes in which space charge effects have been virtually eliminated. These results are enabling ion beam target experiments at LBNL in 2008. We are theoretically investigating the physics of ion beam heated foils and metallic foams and the evolution of these targets. We are assessing how these new techniques apply to low cost modular drivers for inertial fusion energy.

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