

Abstract Submitted  
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**Robust beam illumination in heavy ion inertial fusion**<sup>1</sup> SHIGEO KAWATA, K. MIYAZAWA, T. SOMEYA, T. KIKUCHI, Utsunomiya University, Japan, A.I. OGOYSKI, Varna Tech. University, Bulgaria — In this paper an optimized new HIB illumination scheme is presented in order to realize a robust illumination scheme against a displacement of a direct-driven fuel pellet in an ICF reactor. In heavy ion inertial fusion (HIF) heavy ion beam (HIB) precise illumination is essentially important to obtain a sufficient fusion energy output. In direct-driven pellet implosion, HIBs illuminate a spherical target and the HIB deposition non-uniformity should be suppressed less than a few %. In our study, we developed a 3D HIB illumination code [1] and a hydrodynamic implosion code for HIF studies. We have obtained an optimal HIB illumination scheme to minimize the HIB illumination non-uniformity on a direct-driven fuel pellet and to make the illumination scheme robust against a little pellet displacement  $dz$  in a fusion reactor chamber. The optimized HIB illumination scheme allows 200-300 [micron m] of  $dz$  in HIF [2]. [1] T. Someya, et.al, *Phy.Rev.STAB*, 7, 044701 (2004). [2] S. Miyazawa, et al., *Phys. of Plasma*, 12, 122702 (2005)

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