

Abstract Submitted  
for the DPP09 Meeting of  
The American Physical Society

**Concept for a Low Pressure Gas Fill in a Direct Drive IFE Target Chamber**<sup>1</sup> SASWATHI NATTA, MARIA ARISTOVA, CHARLES GENTILE, Princeton Plasma Physics Laboratory — A concept using a low pressure noble gas has been advanced for attenuating the interaction of (post detonation) He ions on first wall components. In this configuration approximately 1 torr of Ar gas is introduced into the target chamber for the purpose of interacting with energetic He ions before they impinge on first wall surfaces. As a result, effluent processing systems must be designed to take into account a high Ar gas load. Therefore, a two-stage cryopumping system will be configured in line with an array of turbomolecular drag pumps to remove Ar from the effluent gas stream. After exiting the reaction chamber, effluent will pass through the first cryopump stage, at liquid nitrogen temperature (77 K), which will remove argon as well as any trace contaminants from the gas stream. The remaining effluent, consisting of H and He, will pass through the second cryopumping stage, at liquid He temperature (4.2 K), to remove H isotopes from the gas stream. This poster will discuss specific concepts for efficient plasma exhaust processing.

<sup>1</sup>Supported by DOE Contract No. DE-AC0276CH03073

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Date submitted: 17 Jul 2009

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