

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Molecular Cluster Injection for Fueling and Particle Transport Studies on the Lithium Tokamak eXperiment (LTX)* D.P. LUNDBERG, R. KAITA, T. KOZUB, R. MAJESKI, PPPL, V. SOUKHANOVSKII, LLNL — LTX is designed to reduce global recycling with a liquid lithium wall. Gas-based fueling systems, such as wall-mounted gas puffers or supersonic gas injectors, are perturbative to low-recycling plasmas, as they source a significant amount of gas into the edge. Following experiments on the HL-2A tokamak by Yao, et al. (Nucl. Fusion 47(2007) 1399), a molecular cluster injector was designed to supply an increased fraction of core fueling on LTX. A fast solenoid valve is cooled with liquid nitrogen, lowering the temperature of the gas in the valve body. As the gas expands into vacuum, additional cooling yields the formation of molecular clusters. This concentrates the hydrogen into a directed, high-density jet, improving penetration into the plasma. This system can be used for fueling and particle transport studies. Details of the design, construction, and initial operation of this system will be presented, and its application to LTX discussed. *Supported by US DOE contracts DE-AC02-09CH11466 and DE-AC52-07NA27344

D.P. Lundberg
PPPL

Date submitted: 18 Jul 2009

Electronic form version 1.4