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**Further Development of the Gyrotron- Powered Pellet Accelerator** FRANCIS PERKINS, University of Colorado — The Gyrotron-Powered Pellet Accelerator provides an enabling technology to efficiently fuel ITER with fast pellets launched from the High Field Side (HFS) separatrix. Pellet experiments have repeatedly found that fuel efficiently is high - consistent with 100%. In contrast, Low Field Side (LFS) launch experiments find efficiencies of 50% or less. This report addresses what experimental program and what material choices can be made to retain program momentum. An initial program seeks to establish that our heterogeneous approach to conductivity works, maintaining s 1 mho/m. A demonstration of acceleration can be carried out in a very simple laboratory when the pusher material $D_2$[Be] is replaced by LiH[C] which is a room temperature solid with a graphite particle suspension. No cryogenics or hazard chemicals. The mm-wave mirror will be graphite, the tamper is sapphire, and the payload LiD. The payload has a pellet has diameter = 3mm and a mass M = 4.4x$10^{-4}$ kg which is 220 joules at V=1000 m/s. A barrel length of 15 cm completes the design specification.

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