Abstract Submitted
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Progress in the Development of a C_{60} Plasma Gun for Disruption Mitigation[1] I.N. BOGATU, J.R. THOMPSON, S.A. GALKIN, J.S. KIM, FAR-TECH, Inc., A. CASE, S.J. MESSER, S. BROCKINGTON, F.D. WITHERSPOON, HyperV Technologies Corp. — We present the status of a C_{60}-fullerene plasma gun prototype proposed to be used for disruption mitigation with high-density, hypervelocity plasma jets on ITER. The key element is the TiH_2/C_{60} pulsed power, solid state cartridge source. We performed modeling and simulations of the processes critical to the cartridge design. Transient heating of TiH_2 packed grains, explosive sublimation of C_{60} micron size powder, high pressure buildup, ejection of the molecular gas mixture through nozzles, adiabatic expansion of the plasma jet upon ejection from a plasma gun muzzle, and plasma jet penetration through transverse magnetic field were investigated. We show how we incorporated the results into the design of the TiH_2/C_{60} cartridge source. Measurements characterizing the molecular gas jet produced by the cartridge source will be presented.

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