

Abstract Submitted  
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**Metal-Dielectric Washer Cathode for Relativistic Magnetron Plasma, Pulsed Power and Microwave Lab, University of Michigan, Ann Arbor, MI 48109-2104**<sup>1</sup> MATTHEW FRANZI, RONALD GILGENBACH, University of Michigan, BRAD HOFF, Air Force Research Labs, Y.Y. LAU, ED CRUZ, University of Michigan — The UM/L-3 relativistic magnetron operates at -300 kV, 2-10 kA, for durations of up to 1 microsecond and generates microwave pulses of 100's MW output power at 1 GHz for 100's ns. Recent research with the magnetron has focused on the exploitation of electrical triple points on the cathode to generate electron avalanching. This Metal-Dielectric Washer (MDW) cathode consists of alternating washers of OFHC-Cu and BN, which vary in radius for each tested triple point configuration. The MDW cathode exhibits high current and fast turn on times and does not degrade under magnetron operating conditions. Initial experimental results of the MDW cathode on the magnetron have shown electron emission currents up to 4 kA and microwave power between 100-200 MW. Experiments will be compared to simulation results. [1] N.M. Jordan, R.M. Gilgenbach, B.W. Hoff, and Y.Y. Lau, Rev. Sci. Inst. 79, 064705 (2008) [2] N. M. Jordan, Y. Y. Lau, D. M. French, R. M. Gilgenbach, and P. Pengvanich,, J. Appl. Phys. 102, 033301 (2007)

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