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Magnetic Priming at the Cathode and Anode of a Relativistic Magnetron B.W. HOFF, R.M. GILGENBACH, Y.Y. LAU, N.M. JORDAN, J.C. ZIER, M.R. GOMEZ, D.M. FRENCH, E.J. CRUZ, University of Michigan, K.L. CARTWRIGHT, M.D. HAWORTH, P.J. MARDAHL, T.A. SPENCER, Air Force Research Laboratory, D. PRICE, L-3 Communications — Magnetic priming[1,2] experiments on the UM/ L-3¬Titan relativistic magnetron (100 MW's in L-band, -300 kV, ∼3 kGauss), have shown suppression of unwanted modes and reductions in starting currents for the pi-mode. Data from continuing simulations and experiments on magnetic priming at the cathode will be presented, as well as data on magnetic priming at the cathode and anode. Data show that magnetic priming at the cathode significantly lowers (average factor of 2.5) the starting current for pi-mode generation. The percentage of pi-mode shots was also increased by magnetic priming at the cathode by as much as 60% over unprimed shots. Experiments and simulation results will be reported concerning the effects of magnetic priming at both cathode and anode. References [1] V.B. Neculaes, R.M. Gilgenbach, and Y.Y. Lau, US Patents 6,872,929 (3/29/2005) and 6,921,890 (7/26/2005); Appl. Phys. Lett., 83, 1983 (2003). [2] M.C. Jones, V.B. Neculaes, W. White, Y.Y. Lau, and R.M. Gilgenbach, Appl. Phys. Lett., 84, p1016, (2004) Acknowledgements: This research was supported by AFOSR, AFRL and the AFOSR-MURI Program on Cathode and Window Breakdown for High Power Microwave Sources

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