Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Analysis and Experiments On Peer-to-Peer Locking of Magnetrons[1] E.J. CRUZ, P. PENGVANICH, Y.Y. LAU, R.M. GILGENBACH, B. HOFF, University of Michigan, J.W. LUGINSLAND, NumerEx, UNIVERSITY OF MICHIGAN, ANN ARBOR, MI COLLABORATION, NUMEREX, ITHACA, NY COLLABORATION — Locking of multiple magnetrons remains an important topic in contemporary applications of high power microwaves. We report our recent findings in both theory and experiments. Starting with the mutual, or peer-to-peer, locking of two magnetrons, we derived a novel condition for phase locking. This condition reduces to Adler's classical condition when the coupling is one way, where one magnetron becomes the *master* and the other becomes the *slave*. The formulation is extended to N magnetrons, under the assumption that the mutual coupling is modeled as an N-port network. Experimental results on the peer-to-peer phase-locking of two, 1-kW magnetrons will be reported.

[1]This work was supported by ONR, AFOSR, AFRL, L-3, and Northrop-Grumman.

Edward Cruz
University of Michigan

Date submitted: 18 Jul 2008 Electronic form version 1.4