

Abstract Submitted  
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**Multipactor-Susceptible RF Windows as Power-Tunable Microwave Limiters**<sup>1</sup> G. GREENING, M. FRANZI, P. ZHANG, Y.Y. LAU, R.M. GILGENBACH, University of Michigan — Multipactor breakdown on a dielectric may provide automatic protective isolation of electronic circuits such as transmitter-receiver (TR) switches in radar. Prior Monte Carlo simulations suggest the application of a DC bias across a dielectric window in a vacuum-gas environment can lower the threshold for the onset of RF-initiated multipactor [1]. Variation of the DC bias may therefore provide a mechanism by which a microwave window might be tuned such that RF powers exceeding a threshold would result in window breakdown. Previous experimental work confirmed that a DC bias was effective at reducing the threshold for window breakdown to 200 W at 2.45 GHz using argon at 15 – 25 torr as the background gas. Current research is focusing on operation in a multipactor-dominated pressure regime [2] using  $50 < p < 500$  mTorr. Measurement of RF extinction times and the impact of different window materials on performance are of particular interest, especially materials with high secondary electron yields that are resistant to plasma-induced surface degradation.

[1] P. Zhang et al., *Phys. Plasmas* 18, 053508 (2011).

[2] J. P. Verboncoeur et al., *Power Modulator Symposium Record*, pp. 13-16, 2006.

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