

Abstract Submitted  
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**Modeling High-Voltage Breakdown for Single- and Multi-stack Dielectric Insulators**<sup>1</sup> MANUEL ALDAN, JOHN VERBONCOEUR, Univ. of California, Berkeley, Y.Y. LAU, Univ. of Michigan, JOHN BOOSKE, Univ. of Wisconsin — Breakdown from DC through microwave in dielectric-insulator configurations with one or more segments will be investigated using an improved 2D PIC simulation model [1]. The goal of this work is to develop the capability to predict and control the breakdown threshold under a wide range of parameters and geometries. Effects considered include secondary-emission [2], space- and surface-charge, ambient and desorbed gas, and surface-plasma generation for single- and multiple-layer [3] insulators with applied fields from DC to THz frequencies. Comparison between simulation and experiment will be conducted where possible.

[1] Taverniers, S., et al., ICOPS 2009 Proc., 2009.

[2] Vaughan, J.R.M., IEEE TED, Vol. 36, No. 9, 1989, pp.1963-1967.

[3] Leopold, J.G., et al., Proc. 2010 PMHVC.

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