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**Microwave-Plasma Window Experiments and Theory**[1] MATTHEW FRANZI, PENG ZHANG, RONALD GILGENBACH, Y.Y. LAU, ANDREW MCKELVEY, University of Michigan — The development of modern High Power Microwave (HPM) sources necessitates protections against damage to sensitive electronic equipment. The primary goal of this research is an electrically transparent window that optimizes transmission of desired low power signals and generates plasma to absorb or reflect potentially damaging HPM pulses. Current experiments at UM attempt to exploit multipactor, inducing surface plasma flashover when exposed to the RF electric fields of HPM. Theory and experiments will characterize conditions necessary to initiate multipactor as well as competing mechanisms such as collisional ionization. Two experimental setups are being investigated: 1) relativistic magnetron at 100 MW and 1.04 GHz, and 2) CW, 1-KW, source at 2.45 GHz. Each experimental system utilizes cross-polarized, interdigitated-copper fingers on the window's surface, capable of a DC bias (0-750V), to seed breakdown and enhance ambient fields.

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