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Recent Experimental Results on Coaxial Multipactor¹ STEPHEN V. LANGELLOTTI, NICHOLAS M. JORDAN, Y. Y. LAU, RONALD. M. GILGENBACH, Univ of Michigan - Ann Arbor, MULTIPACTOR MURI COLLABORATION — Multipactor is a discharge phenomenon that occurs in RF vacuum electronics and transmission lines. It is of particular concern in modern satellite communication. In coaxial systems, theoretical studies are far more limited, in part because of the complexity in the electron orbits. Several previous experiments [1, 2], have been performed in coaxial transmission lines at low frequencies (10s-100s MHz), but there exist very little experimental data at higher frequencies. We will present experimental results based on our previous simulations [3] on multipactor in a coaxial geometry at multi-GHz frequencies. Diagnostics indicate an increase in RF attenuation due to the multipactor discharge as well as a coincident increase in electron multiplier signals. We also examine the timing characteristics of the onset of multipactor relative to the start of the microwave pulse. [1] Woo R., J. Appl. Phys. 39 1528, (1968). [2] Graves T., doctoral dissertation, MIT, 2006. [3] S. V. Langellotti, et al, IEEE Trans. Plasma Sci. 48, 1942 (2020).

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Stephen V. Langellotti
Univ of Michigan - Ann Arbor

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