

Abstract Submitted
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Effects of Humidity on the Conductive Properties of M55J Carbon Composites¹ CRYSTAL TINGLE, Utah State University, MATERIAL PHYSICS GROUP TEAM — The focus of this research is to characterize advanced materials that are being considered for use in the harsh environment of outer space. The material of interest is M55J, a carbon fiber reinforced polymer (CFRP), which has already been used or tested for space applications. An example of which is the James Webb Space Telescope, Lunar Gateway Space Station, and more future projects to come. In space, materials will be bombarded by solar winds and radiation, which can cause the component to build charge. This phenomenon is referred to as spacecraft charging. It is of great importance to ensure that spacecraft remain in a controlled environment, so characterizing the electrical properties of materials helps to guide designs specific to unique applications. M55J is an MJ-type carbon fiber, embedded in a thermoset epoxy resin. This gives the material a favorable strength-to-weight ratio, and typically a very low resistivity ($0.8 \times 10^{-3} \Omega \cdot cm$). In this research, we will have three groups of M55J. First will be M55J soaked in water, the second will be M55J baked at high temperatures in an oven, and the third will be M55J baked and left to atmospheric air and temperatures. The purpose of this process is to characterize M55J at a controlled level of maximum humidity

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