

Abstract Submitted  
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**Novel Photovoltaic Cell Characterization on a 1U CubeSat, RHOK-SAT<sup>1</sup>** GIULIANA HOFHEINS, Rhodes College, RHODES COLLEGE CUBESAT/AEROSPACE ENGINEERING CLUB TEAM — Rhodes College is leaving its footprint in space with a nanosatellite (a CubeSat), projected to be ready for launch in June of 2023. The payload’s mission of the satellite is to characterize novel photovoltaic cells (PV) in low earth orbit. These cells, developed by the Photovoltaics Materials and Devices Group at the University of Oklahoma, show promise for providing remote power generation for future crewed and uncrewed space missions. The three types of cells are; (1) state-of-the-art flexible copper indium gallium selenide cells with a silver absorption layer (ACIGS), (2) gallium arsenide antimonide (GaAsSb) cells and (3), state of the art perovskite cells. These specific types of cells have not been tested in long duration space environments, where thermal cycling and radiation effects can effect cell performance. While in orbit, the experiment will perform current-voltage sweeps simultaneously across all test cells. This data will be stored on the on board computer (OBC), until it is downlinked to our groundstation in Memphis, TN. Graphical analysis of these current-voltage curves will provide insight into their respective space-hardiness for future space use, as in deep space missions and prolonged human presence on the lunar surface.

<sup>1</sup>Rhodes College Department of Physics, University of Oklahoma Photovoltaics Materials and Devices Lab

Giuliana Hofheins  
Rhodes College

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