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STRUCTURAL AND ELEMENTAL ANALYSIS OF DEGRADED SINGLE JUNCTION AMORPHOUS SILICON SOLAR MODULE[1] GILBERT OSAYEMWENRE, EDSON MEYER, Fort Hare — Photovoltaic solar modules have different defects and degradation characteristic modes. These degradation modes normally heats up some regions in the PV module. Depending on the degree and size of the localised heat, the localized heat can raise above the temperature limit of the module and cause damage to the structural orientation. The presence of severe defect and degradation correlates with high temperature gradients that usually results in morphological damage especially under outdoor conditions. The present study investigates the effect of defect/degradation on the surface morphology of single junction amorphous silicon modules (a-Si:H) during outdoor deployment. The observed structural damage was analysed using scanning electron microscope (SEM) and energy dispersion X-ray (EDX) to ascertain the elemental composition. Results show huge discrepancies in the chemical composition constitute alone different regions. The presence of high concentration of carbon and oxygen was found in the affected region.

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