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System for Diagnosis and Treatment of Structural Non-uniformities in Semiconductor Devices

The use of polycrystalline or amorphous thin film semiconductor material layers has become increasingly popular in semiconductor device design, but the presence of various structural nonuniformities is inherent in such device configurations and leads to an overall decrease in the efficiency of the semiconductor device. Therefore, a system has been developed for treating structural nonuniformities in semiconductor devices that modifies the electric potential of localized defect areas within the semiconductor device to create a more uniform distribution of the electric potential generated by the semiconductor device. This invention is a self-healing universal non-uniformity treatment (SHUNT) system combining a self-healing electrolyte treatments to a photovoltaic or other semi-conductor device with a shunt busting treatment and an *in-situ* nonuniformity diagnostic function. This invention relates to a system of manufacturing a semiconductor junction structure that includes selectively creating an electrically modified layer over areas of aberrant electrical potential that deviate from average electrical potential in a semiconductor or electrode layer of a semiconductor device.

The University of Toledo is seeking a company interested in utilizing this improved system for treating structural non-uniformities in semiconductor devices.

Applications:

1. Thin film semiconductor devices
2. Photovoltaics
3. Active matrix liquid crystal displays
4. light emitting devices

Advantages:

1. Increased panel wattage
2. Increased productivity with higher yields
3. Reduction of scrap
4. Improved panel electrical uniformity and stability

This invention is patent pending

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