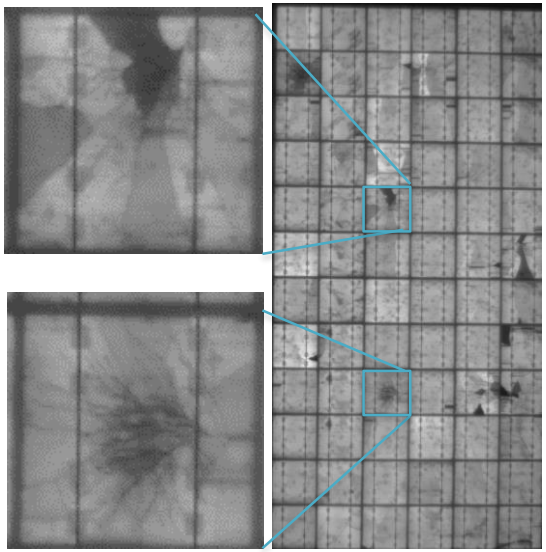
Analysis of crack structures in PV-modules using X-ray

Bachelor Thesis

Crystalline PV-modules are sensitive to mechanical loading, e.g . hailstorm, hurricanes, during real operating conditions and lifetime. Cracks and fractures can be induced in solar cells and can potentially reduce the module power, as known. The crack microstructure needs to be studied for better understanding of the differences between power-relevant and power-irrelevant cracks .



EL-image of PV-module with cracked cells after a hailstorm, Munich, June 2019

TODOs:

- IV-measurements, EL-imaging for PV-module selection
- Adapt the X-ray setup of the investigation of standard (1.5m²) PV-modules
- Study the characteristics of various cracks
- Identify differences between power-reducing and power-irrelevant cracks

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