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Design of a light beam induced current measurement system for the characterisation of defects in crystalline silicon solar cells.

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Abstract content
   (Max 300 words)

Bezuidenhout, Vorster, van Dyk

Light Beam Induced Current (LBIC) measurement is a technique used to perform localized cell characterization on solar cells using a light beam as a probe. This technique allows the determination of local photo response of a solar cell that enables characterization of the spatial distribution of defects and electrical parameters. LBIC is a technique that focuses light onto a solar cell device and thus creating a photo-generated current that can be measured in the external circuit for analysis. By scanning this beam probe across a solar cell while measuring the current-voltage characteristics at each point a map of various device parameters can be obtained. In this study a high resolution LBIC system was designed and is being constructed. In addition to standard LBIC systems that normally measure photoresponse that results from using different wavelength light, the system designed will also be able to measure point-by-point current-voltage (I-V) characteristics of a solar cell. This enables the extraction of device parameters as a function of position in the cell surface. This paper discusses the design of the LBIC system, the local photo response of the individual cells and LBIC maps indicating the presence of performance degrading defects.

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Yes

Level for award
 (Hons, MSc,
   PhD)?

MSc

Main supervisor (name and email)
and his / her institution

Prof E.E van Dyk, ernest.vandyk@nmmu.ac.za,
NMMU

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Primary author: Mr BEZUIDENHOUT, Lucian (NMMU Physics Department)

Co-authors: Prof. VAN DYK, Ernest (NMMU); Dr VORSTER, Frederik (NMMU)

Presenters: Prof. VAN DYK, Ernest (NMMU); Dr VORSTER, Frederik (NMMU); Mr BEZUIDENHOUT, Lucian (NMMU Physics Department)

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