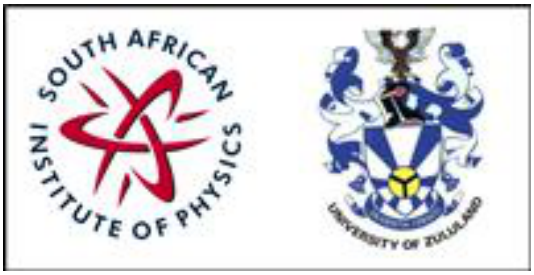

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Development of a Large Area Light Beam Induced Current scanner

Friday, 12 July 2013 11:10 (20 minutes)

Abstract content
   (Max 300 words)

The planned large scale deployment of photovoltaic (PV) modules for utility scale electricity generation in South Africa has placed a renewed interest on new module characterization techniques that can be used to predict the long term performance of modules. A Large Area Light Beam Induced Current (LA-LBIC) scanning technique has been developed that enables the mapping of the induced photocurrent (Iph) over the whole module at different applied module bias voltage levels. The Iph at different bias levels is a good indicator of latent module defects such as various cell mismatch features, weak or broken cell interconnect tabbing, EVA delamination or non-uniformities across the module surface. Cell mismatch features refer to the inability of a string of series connected cells to produce the same current as well as parallel connected strings of cells in large modules to produce the same matching voltages.
This paper presents the results of LBIC scanned images of a variety of different PV technologies, using laser light or white light as a beam probe. This paper also offers an in depth assessment of the LBIC technique as a useful tool that is applied on encapsulated series and parallel connected PV cells in modules. Future development of this technique such as the inclusion of simultaneous RAMAN - LBIC scanning will also be discussed.

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