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## Injection dependent dark IR imaging of PV modules as an alternative to EL imaging for individual cell characterisation

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The determination of the dark electrical characteristics of each cell within a PV module enables the simulation of the complete PV modules electrical performance when in operation. It is, therefore, possible to estimate the power output of a PV module in operation. In a previous study, a method was developed that used injection dependent Electroluminescence (EL) images to characterise individual cells within a module. However, this method has specific weaknesses. The first major weakness is that when the cells are not luminescing, the cell voltages cannot be determined. The second weakness is that if the module has parallel string, the assumption that all cell currents are equal, is not valid. The method developed in the current work proposes that individual cell voltages can be determined using dark IR imaging only. When combined with the previous method, the proposed method allows for the individual cell characterisation in modules with parallel strings. This paper discusses the method employed and presents results for various modules, including modules with parallel strings.

### Apply to be considered for a student ; award (Yes / No)?

No

### Level for award;(Hons, MSc, PhD, N/A)?

N/A

**Primary author:** Dr DIX-PEEK, Ross (Nelson Mandela University)

**Co-authors:** VAN DYK, Ernest (Mandela University); Dr VORSTER, Frederik. J. (Nelson Mandela University)

**Presenter:** Dr DIX-PEEK, Ross (Nelson Mandela University)

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