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Design, construction and characterization of a steady state solar simulator

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Abstract content
   (Max 300 words)

Photovoltaic (PV) cells and modules are rated at standard test conditions (STC: 1000W/m2 irradiance, 250C temperature and AM1.5 global spectrum). This standard allows the measurement of PV performance only, without the effect of varying the temperature, irradiance and spectrum. Measuring the outdoor performance of photovoltaic cells and modules is important, but it's unlikely that the outdoor conditions at any instant ever repeat itself. The aim of this study is therefore to design, construct and characterize a solar simulator. A solar simulator is used because it provides illumination that approximates the intensity and spectral distribution of natural sunlight and it also provides a controllable indoor test facility. This simulator is using halogen lamps as the source of light and is used to accurately measure the I-V characteristics of various PV cells and modules under STC. The simulator can also be used to measure the I-V characteristics when the temperature, irradiance and spectrum are varied. The final paper will present the design and a detailed characterization of the simulator. Initial STC measurements of various PV technologies will be presented.

Apply to be
 consider for a student
   award (Yes / No)?

yes

Level for award
 (Hons, MSc,
   PhD)?

MSc

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

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Would you like to <br> submit a short paper <br> for the Conference
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yes

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