

## Department of Electrical and Computer Engineering

### **Title: « Solar Energy, from the Sky to the Grid: Modelling Techniques, Assumptions & Oddities in Common Approaches »**

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Room 117, Building XΩΔ02

#### **Abstract:**

The solar energy market is ever expanding as renewables come to the forefront in the decarbonisation of the energy sector. The photovoltaics (PV) industry reached a global installed capacity of 300 GW in 2016. With a conservative cost assumption of €1 per W installed and an associated uncertainty of 5%, the uncertainty in the PV market today can be estimated as €15 billion. That's a lot of uncertainty. Much of this uncertainty comes from performance modelling and device characterisation difficulties.

This talk will describe various aspects of the PV performance modelling chain, highlighting key areas of difficulty and common errors. Measurement difficulties and device characterisation issues will also be discussed.

#### **Biography:**

Ian is a postdoctoral Research Associate in the Applied Photovoltaics (APV) group at the Centre for Renewable Energy Systems Technology (CREST), Loughborough University, UK. Following graduation from his Physics degree in 2009 he moved in to Renewable Energies with a desire to affect positive change. His PhD thesis was entitled 'Modelling Concentrating Photovoltaics' and he has been working in the broader context of solar energy and applied photovoltaics since 2013.

Ian's key research areas are: solar resource monitoring and modelling; PV system performance modelling; and, more recently, PV grid integration. He is a key member of one of only ten ISO 17025 accredited laboratories for PV device characterization and calibration. Ian plays an active role in the PV community, sitting on several expert and review panels; and giving guest expert talks at events worldwide. He also volunteers as a solar energy advisor for a small charity.



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