

CONDENSED MATTER SEMINAR

Monday 5 June at 14:30

Simpkins Lee room

“Transforming characterization data into information in emerging solar cells”



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In many emerging solar cell technologies, it is a significant challenge to extract electronic properties of materials and interfaces inside a working device from experimental data. In many cases, approaches frequently used in mature technologies such as crystalline silicon are inapplicable as they require many material parameters to be known a-priori which is rarely the case for novel materials. Based on this challenge for materials and device characterization, this talk discusses the different strategies for data interpretation that have been developed or are in the process of being developed for the specific case of halide perovskite solar cells. The specific focus of the talk is to discriminate between experimental data and strategies to extract useful information from data. This information can then be used to make informed decisions about strategies for process and material innovations. The examples that I will discuss include the question about how to quantify disorder in organic solar cells, the question about how to define a charge carrier “lifetime” in perovskite solar cells. Furthermore, I will briefly discuss the challenge of discriminating between different time-constants in transient and frequency domain measurements and the task of quantifying extraction losses.

Host: Pascal Kaienburg