

Preparation of OPV devices

- *Solution processing*
- *Thermal evaporation (co-evaporation)*
- *N₂ Glovebox: complete processing & characterisation*
- *Wet chemistry for metal oxide films and nanostructures*



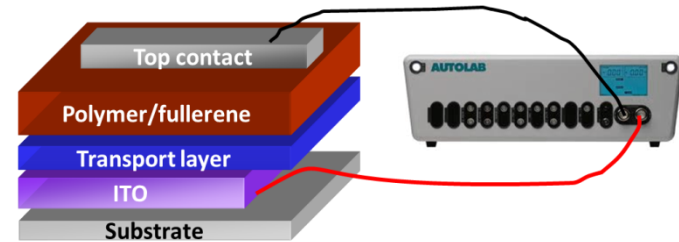
Characterisation

- *Solar cell testing (JV, EQE)*
- *Electrical*
- *T-dependent, defined atmosphere)*
- *Optical spectroscopy*
- *Microscopy (SEM, AFM, KPFM)*

**Necessary infrastructure for OPV
production & characterisation**

Frequency resolved (opto)-electronic techniques

- *Impedance spectroscopy*
- *Intensity modulated photocurrent (IMPS)*

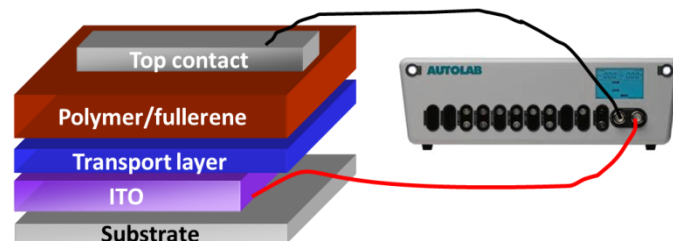


Degradation Effects Related to the Hole Transport Layer in Organic Solar Cells

*Bernhard Ecker, Jairo Cesar Nolasco, Josep Pallarés, Lluís Francesc Marsal, Jörg Posdorfer, Jürgen Parisi, and Elizabeth von Hauff**

Frequency resolved (opto)-electronic techniques

- *Impedance spectroscopy*
- *Intensity modulated photocurrent (IMPS)*



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J. Phys. Chem. C **2012**, *116*, 16333–16337

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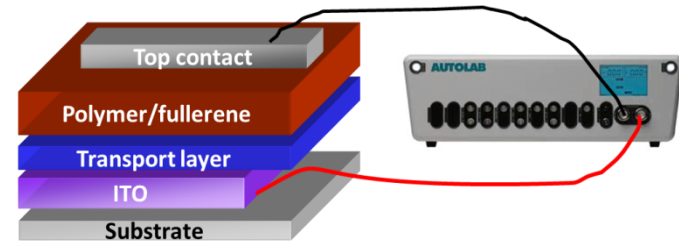
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Jürge

Understanding S-Shaped Current–Voltage Characteristics in Organic Solar Cells Containing a TiO_x Interlayer with Impedance Spectroscopy and Equivalent Circuit Analysis

Bernhard Ecker,^{*,†} Hans-Joachim Egelhaaf,[‡] Roland Steim,[‡] Jürgen Parisi,[†] and Elizabeth von Hauff^{*,§,||}

Frequency resolved (opto)-electronic techniques

- Impedance spectroscopy
- Intensity modulated photocurrent (IMPS)



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Article

Solar Energy Materials & Solar Cells **116** (2013) 176–181

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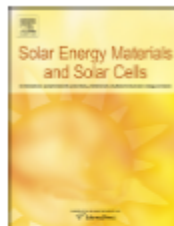


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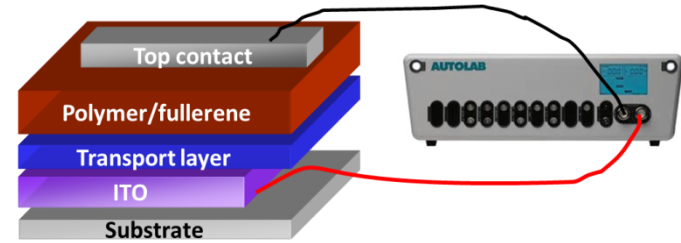
Influence of hole extraction efficiency on the performance and stability of organic solar Cells

Bernhard Ecker^{a,b,*}, Jörg Posdorfer^c, Elizabeth von Hauff^{a,b}



Frequency resolved (opto)-electronic techniques

- *Impedance spectroscopy*
- *Intensity modulated photocurrent (IMPS)*

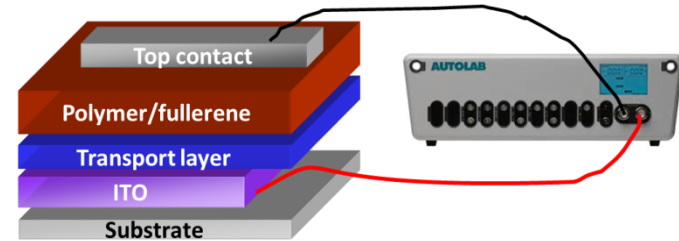


Photophysics

- *Fluorescence*
- *Transient absorption*

Frequency resolved (opto)-electronic techniques

- *Impedance spectroscopy*
- *Intensity modulated photocurrent (IMPS)*



Photophysics

- *Fluorescence*
- *Transient*

Materials Views

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Adv. Funct. Mater. 2012, 22, 1461–1469

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The Effect of Ageing on Exciton Dynamics, Charge Separation, and Recombination in P3HT/PCBM Photovoltaic Blends

Felix Deschler, Antonietta De Sio, Elizabeth von Hauff, Peter Kutka, Tobias Sauermann, Hans-J. Egelhaaf, Jens Hauch, and Enrico Da Como**

Member of the LaserLab Europe consortium



20 Institutes in 16 countries (7th Framework)

- *Maintain competitive laser infrastructure*
- *Develop new laser-based systems*
- *Offer access to state of the art laser facilities to European researchers*

Access to facilities

- *Short proposal to host laboratory (over a contact usually!)*
- *Short evaluation time*
- *Lab time for 2 – 6 weeks (can be multiple visits)*

Can we combine with STMS and ESRS for the Cost Action?

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- Fluorescence (transient/steady state)
- Transient absorption (ps – fs; visible to NIR)
- Narrow band, tuneable UV laser setup
- Time resolved and confocal Raman spectroscopy
- Time resolved IR spectroscopy
- Stark spectroscopy

Check out the full list on www.laserlab.vu.nl

Alina



Andreas

Sabrina



Sheela



Nadine

Simon



Contact us!