paios

The revolutionary platform for all-in-one characterization of solar cells and OLEDs

All-in-one **– performs various experiments**

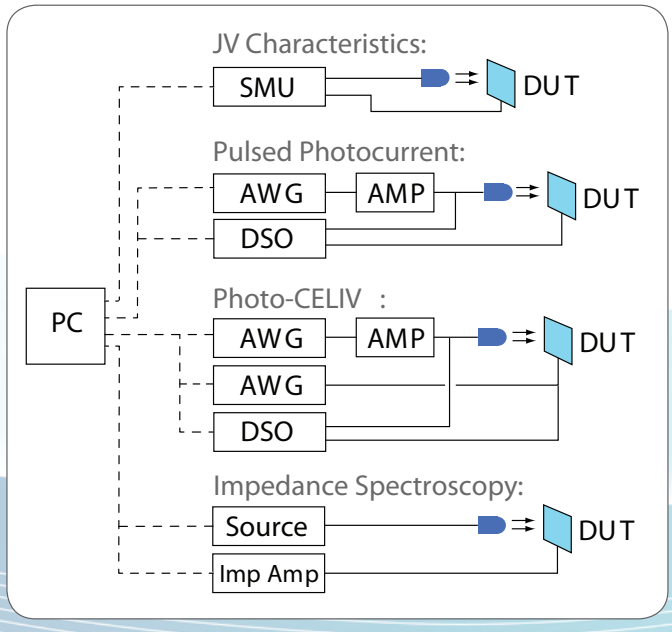
Automated **– launch all measurements with one click**

Reliable **– precise signals with high reproducibility**

FLUXiM

scientific software · www.fluxim.com

A new generation of characterization platform is born.



SMU: Source Measure Unit | AWG: Arbitrary Waveform Generator
AMP: Voltage Amplifier | DUT: Device Under Test
PC: Personal Computer
: Light Source

Traditional measurement setups:

As leading simulation software provider for Organic Electronics and Photovoltaics we are aware of the measurement needs of our customers. Setting up steady-state and transient opto-electrical characterization equipment can be tedious and time-consuming. Commonly, dedicated setups are developed for different types of measurements with some level of automatisation. Often, the data sets cannot directly be compared due to experimental uncertainties involved with different hardware. This makes device optimization and parameter extraction a challenging task. Without reliable measurements for parameter extraction one cannot validate models and reveal the predictive power of device simulation.

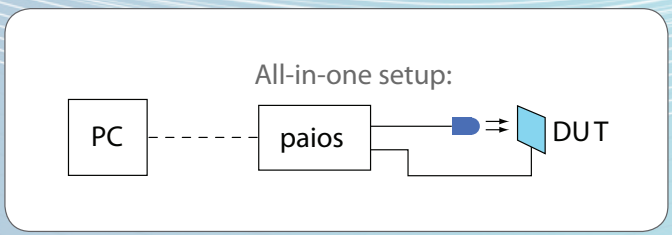


Illustration of paios for solar cells.

Advanced all-in-one setup:

With our revolutionary all-in-one characterization equipment, we have solved these problems for you. This characterization platform can acquire the data set for you which you need for a comprehensive device characterization.

Paios for Solar Cells:

A white high-power LED illuminates the solar cell.

Other types of LEDs are available upon request.

Paios for OLEDs:

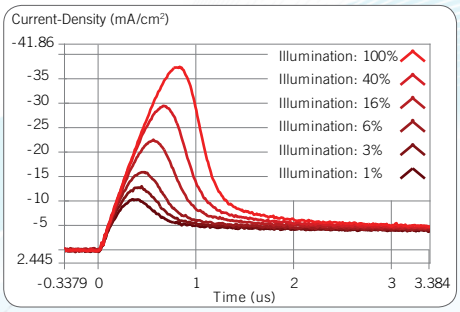
A high-speed photodetector measures the transient electroluminescence of the OLEDs.

Let it adress your device measurement needs today!

Applications:

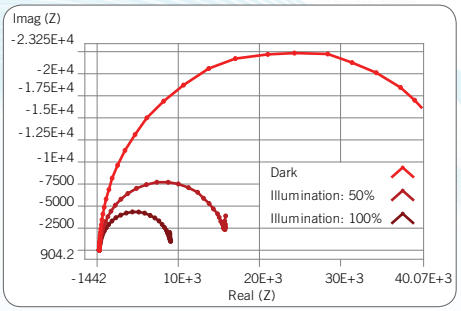
Paios performs all experiments stated below (and even more) fully automated within a few minutes. Thus it helps to speed up your R&D.

CELIV and Photo-CELIV



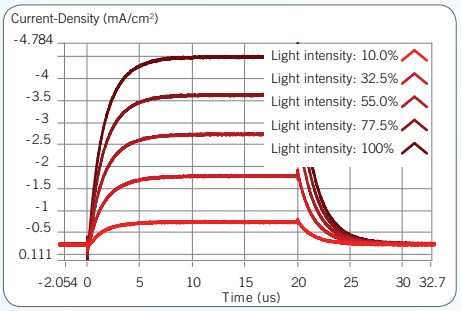
Popular technique for determining charge carrier mobilities and studying recombination dynamics[1,2].

IS: Impedance Spectroscopy



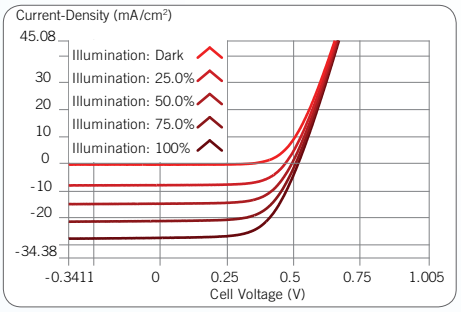
Study charge carrier dynamics and charge trapping over a large range of time scales.

TPC: Transient Photocurrent



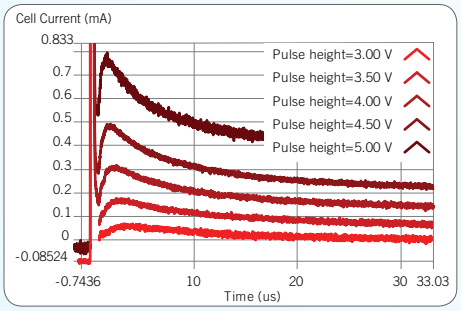
Get more insight into charge transport in solar cells by investigating turn-on and turn-off dynamics in response to a light pulse.

IV/ILV: Current Voltage Characteristics



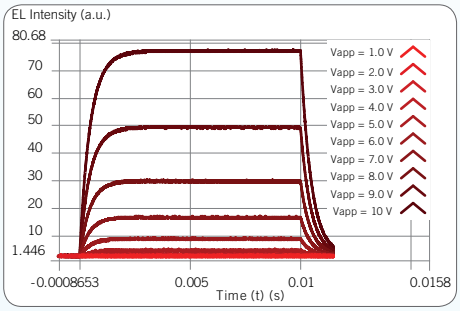
Most common electrical characterization for OLEDs and solar cells.

DIT: Dark Injection Transients



Frequently used to measure the charge carrier mobility of monopolar devices.

TEL: Transient Electroluminescence



Analyze OLED electroluminescence turn-on and turn-off dynamics in response to a voltage pulse.

- The combination of several measurement techniques and numerical simulation with setfos[3] enables powerful parameter extraction. Extracted parameters are more accurate and more reliable than values deduced from analytical models (see also ref. 2, 4).

swiss made

1 G. Juska, K. Arlauskas, M. Viliunas, J. Kocka, Phys. Rev. Lett. 84, 4946 (2000)
2 M. Neukom, N. Reinke and B. Ruhstaller, Solar Energy 85, 1250, (2011)
3 Semiconducting thin film optics simulation software (setfos), **www.fluxim.com**
4 M. T. Neukom, S. Züfle, B. Ruhstaller, Organic Electronics 13, 12 2910 (2012)

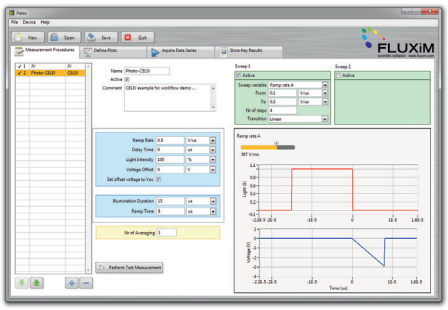
paios

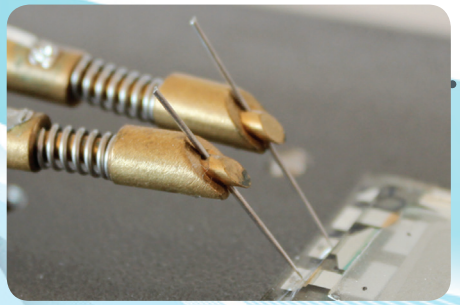
The revolutionary platform for all-in-one characterization of solar cells

Features

Easy-to-use

Use the paios software to define your own measurement procedures, measure several cells and compare the results.





Flexible contacting

Use the flexible solution with probe-based sample contacting or ask for a customized sample holder.

Compact hardware

Precise high-speed and high-resolution measurement units in one compact box.

About Fluxim

Fluxim provides advanced device characterization technology. Our opto-electronic simulation software SETFOS is as complex as physics necessitates and is still easy-to-use, providing handy least-square fitting and parameter variation routines. SETFOS is being used by industrial and academic R&D teams world-wide. Fluxim collaborates with leading industries such as Philips, BASF, Belectric OPV and Holst Centre and is partner in several European research projects.

Testimonials:

«We successfully characterized the transient response of silicon-based solar cells with this prototype measurement system. For instance, we were able to determine the electron mobility and photo-carrier lifetime.»

Prof. Dr. Seung Jae Baik,
Korea Advanced Institute of Science and Technology (KAIST), South Korea

KAIST

«This automated measurement platform allows one to perform a series of measurements on organic solar cells within a matter of minutes, which otherwise would have taken days. Because of the automation, insightful tests can be done while performing other research simultaneously.»

Tom van der Hofstad, PhD student,
Eindhoven University of Technology, The Netherlands

TU/e

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