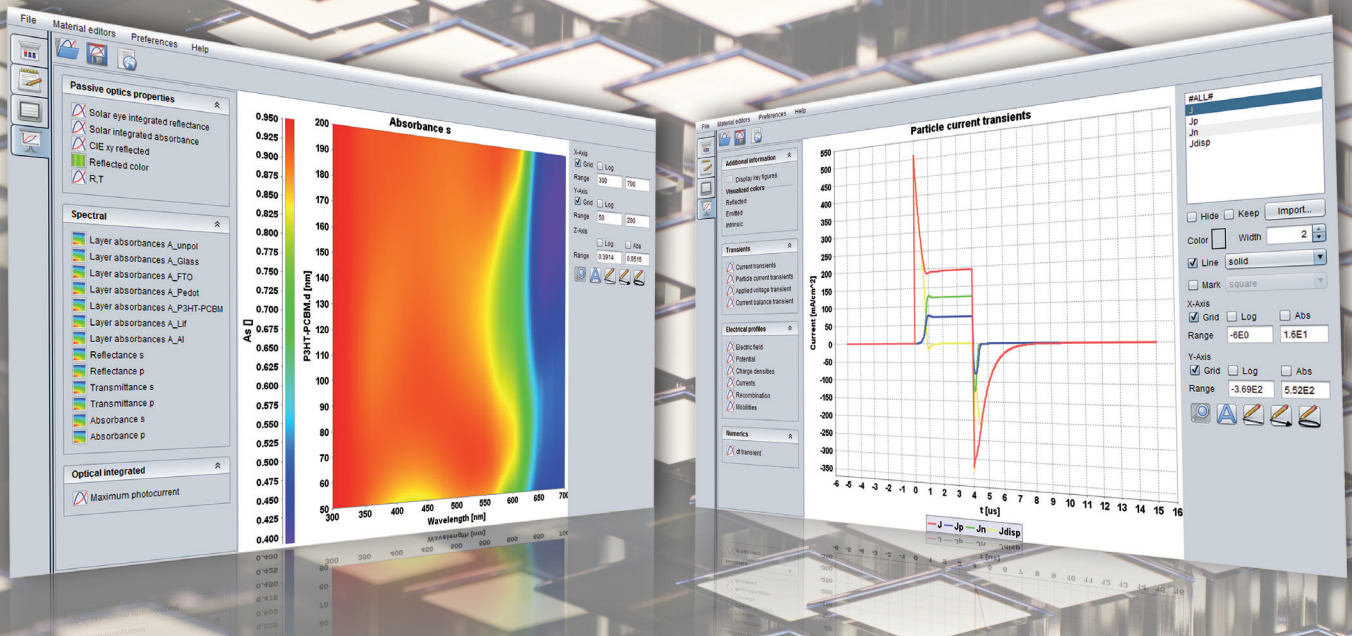
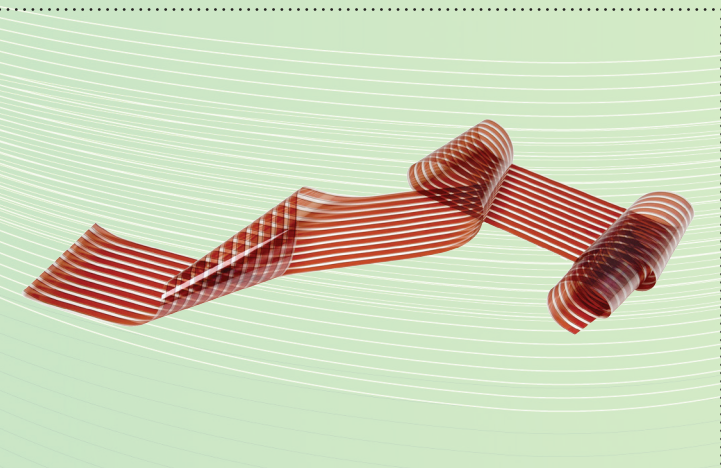
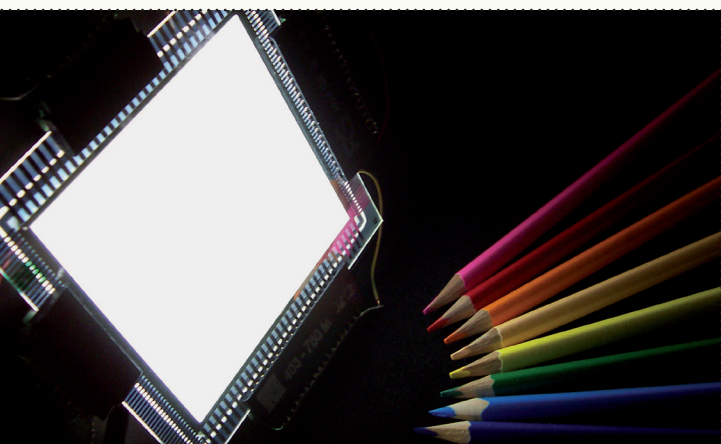


setfos 3.3

semiconducting thin film optics simulation software

OLED Lighting & Displays
Organic Electronics
Photovoltaics





setfos at a Glance

setfos is a powerful and CPU-efficient simulation software tailored to the development of novel optoelectronic thin-film-based technologies.

setfos is designed to study and optimize organic light-emitting diodes (OLEDs) as well as organic solar cells (OPV) and other thin film devices (photo-diodes, Bragg reflectors...).

setfos gives insight into the device physics. Thanks to its advanced analysis features, **setfos** is a highly efficient, predictive and descriptive scientific tool.

setfos enables you to inspect internal characteristics not accessible by experiment, to assess device performance and to accelerate the R&D process.

setfos runs on regular personal computers and is widely used in both industrial and academic research laboratories.

setfos is available in three modules for light absorption, drift-diffusion, and dipole emission simulations. All modules can be combined according to your needs.

setfos performs three versatile simulation tasks: multivariable sweep, optimization, and parameter extraction by least-square fitting.

setfos comes with three interactive views for intuitive graphical input, optional script-based input, and customizable graphical representation of results.

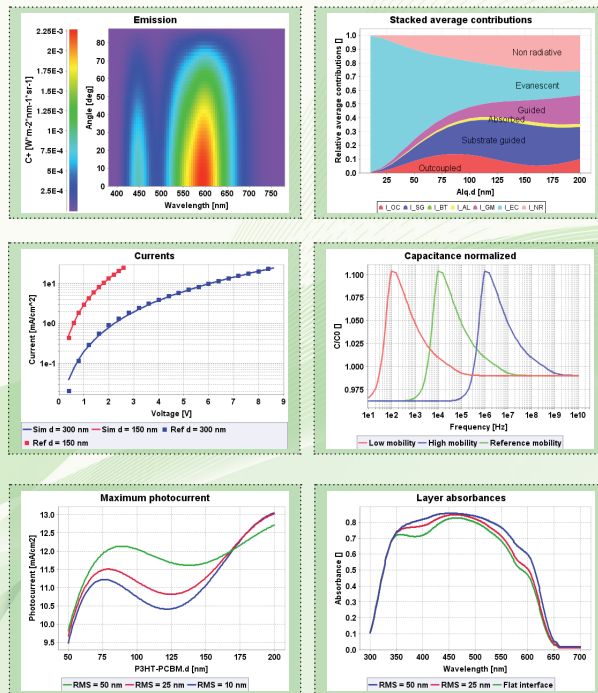
setfos Boosts Your R&D

- Improves your research productivity
- Reduces the number of experimental trials and optimizes device performances
- Extracts physical parameters from your measurements

What's New in setfos 3.3

- Light scattering algorithm
- Electrical impedance spectroscopy
- Multi-threading for multi-core simulation
- Redesigned graphical user interface

Organic Optoelectronics Research Made Easy



Emission

Besides dipole emission spectra and analysis of multi-layer optical modes, easily calculate the angular radiation characteristics of your light-emitting device.

Drift-diffusion

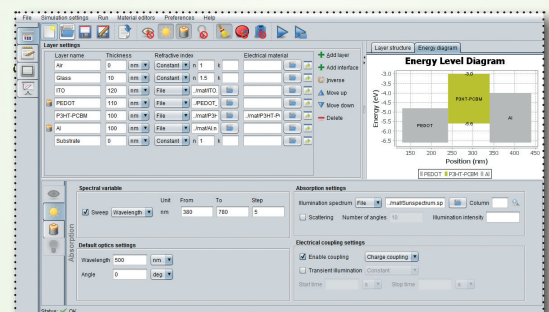
The drift-diffusion module works out profiles and transients of device internal quantities that couple with the optical models for comprehensive optoelectronic simulations. Get insight into the physics of your semi-conducting device and reproduce its I-V or electrical impedance characteristics.

Absorption

Through the calculation of the layer-specific absorbances, examine the critical parameters that affect the photocurrent of your solar cell.

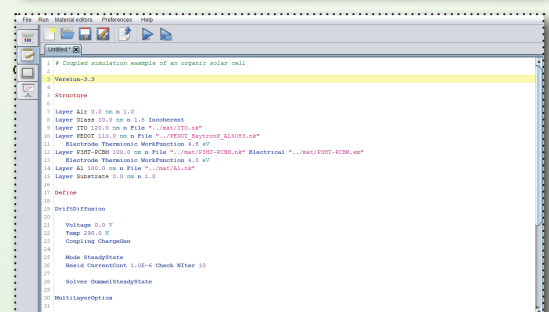
Intuitive Graphical Input Interface

With **setfos** you easily enhance your research productivity within a few mouse-clicks! Import, edit, view and export material parameters to extend your database. Comfortably specify the physical models and numerical algorithms to match your needs.



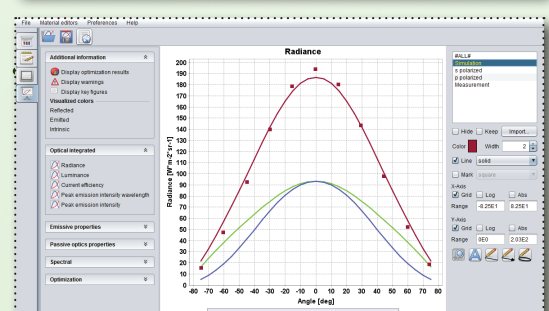
Flexible Script-based Input Editor

Mouse or keyboard? You have the choice! Let the integrated text editor highlight the script syntax to guide you through the whole range of customizable features offered by **setfos**.



Powerful Result Representation

Display, import, edit and export the results of your work. Compare your measurements with **setfos** simulations using plot customization features. Create publication-quality graphs: edit and export to EPS, PDF, PNG, JPG, and SVG.



setfos 3.3

semiconducting thin film optics simulation software

Advanced Analysis

- **setfos** allows the user to perform a multi-target and multi-variable **optimization**.
- Moreover, **nonlinear least-square fitting** lets you extract model parameters from imported measurement data.
- Rely on our all-new and **all-in-one measurement platform paios** for steady-state and transient electrical characterization of semiconductor devices.

All setfos Modules Include

- Intuitive graphical user interface and editor for optional scripting
- Rich and extendable material properties database
- Automatic generation of simulation reports (HTML, PNG, EPS)
- Calculation of specific figure-of-merits like current balance, CIE color coordinates, color rendering index, solar-eye-integrated reflectance, light-incoupling efficiency
- Windows and Linux compatibility

Note: relevant sets of device and material parameters can be obtained by combining **setfos** and **paios**, an all-in-one measurement platform developed by **Fluxim**.

	Modules		
Physical Models	Absorption	Drift-diffusion	Emission
Passive optics characteristics (reflectance, transmittance, absorbance spectra, scalar figure-of-merits, angular dependences)	✓		✓
Polarization optics	✓		✓
Coherent thin film optics	✓		✓
Incoherent substrate definition	✓		✓
Arbitrary combination of coherent and incoherent thin film optics	✓		
Spectral penetration of external illumination	✓		
Arbitrary illumination spectrum	✓		
Photon absorption rate profile	✓		
Layer-specific absorbances	✓		
NEW: Light scattering: in a mixed coherent/incoherent layer stack. Angular reflection and transmission properties of an interface or virtual layer can either be described by an analytical roughness model (Phong model) or scattering matrices imported from an external file	✓		
NEW: Added maximum power conversion efficiency as key figure for fully coupled solar cell simulations	✓	✓	
NEW: Import of transient illumination intensity from external file	✓	✓	
Dipole emission			✓
Multiple emitters in any desired layer			✓
User-defined dipole distribution			✓
Analysis of radiated vs. dissipated power			✓
Top and bottom emission			✓
Arbitrary dipole orientation			✓
Dipole (exciton) decay dynamics		✓	✓
Generation, diffusion, energy transfer of multiple excitons		✓	
Charge drift-diffusion and trapping		✓	
Field, temperature and density dependent mobility model, extended Gaussian disorder model (EGDM)		✓	
User-defined charge distribution initialization		✓	
Customizable numerical methods		✓	
NEW: Small signal analysis (electrical impedance spectroscopy)		✓	
NEW: Tabulated electric field dependent mobility imported from external file		✓	

Software Applications	Absorption	Drift-diffusion	Emission
Optical coating design	✓		
OLEDs, LEDs, VCSELs optics			✓
Solar cells, photodetectors optics	✓		
Organic electronics		✓	
Fully coupled electronic-optical OLED operation		✓	✓
Fully coupled optical-electronic OPV operation	✓	✓	

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