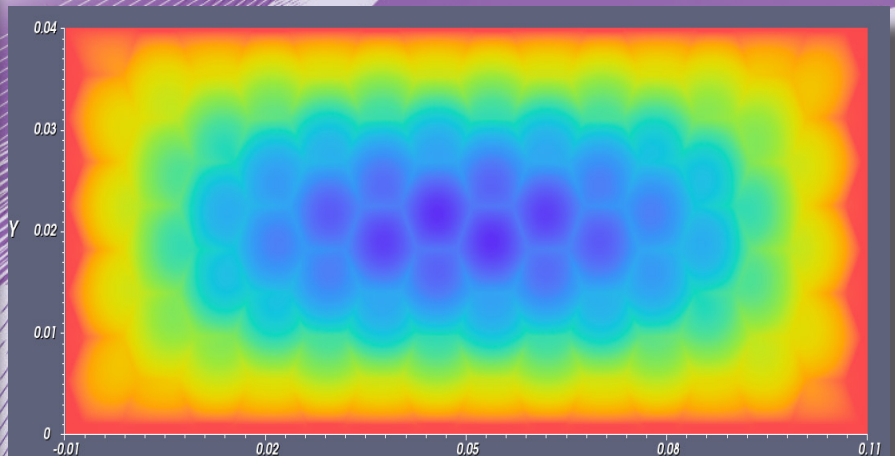
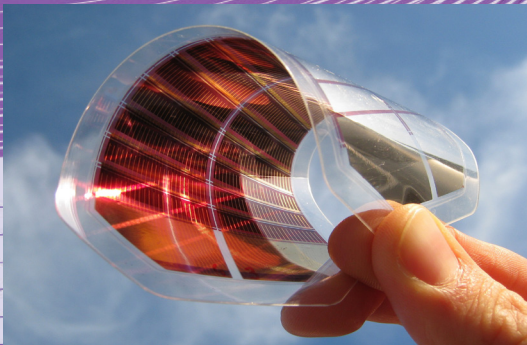
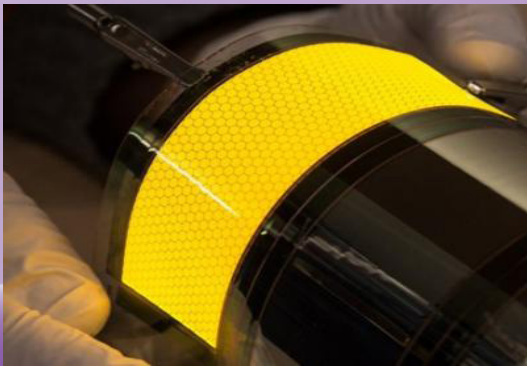


laoss

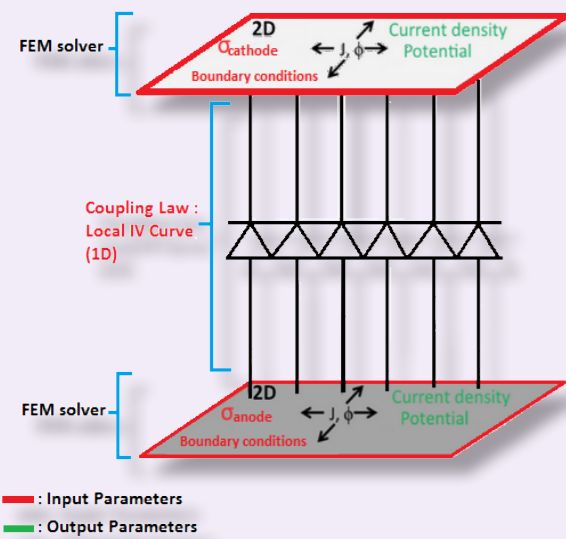
*Simulation software for
design and optimization of large-area
OLEDs, solar cells and modules*



Minimizes electrical losses

Fast calculation on standard PC

Supports upscaling process from lab to fab

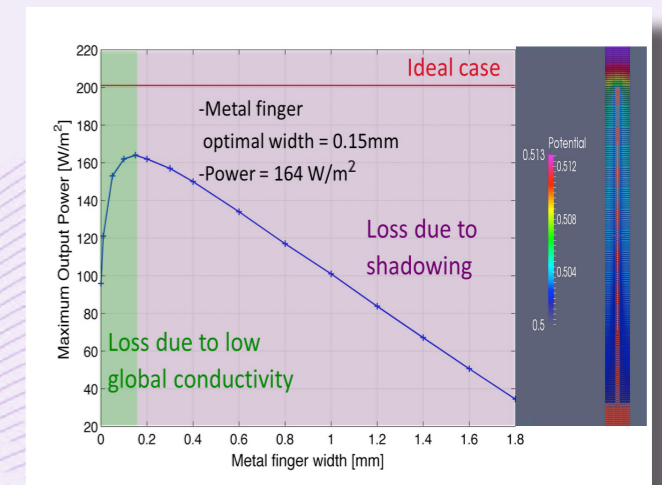


Laoss at a Glance

- **Simulate large area** devices such as OLEDs and photovoltaic cells or modules considering **ohmic losses** in the electrodes.
- Use a **measured** or **simulated** current-voltage (IV) law to **couple the top and bottom** electrode domains.
- **Optimize** the device by variation of electrode **materials, geometry**, etc.
- **High speed** computation with **reduced degrees of freedom**

Metal Grid Optimization

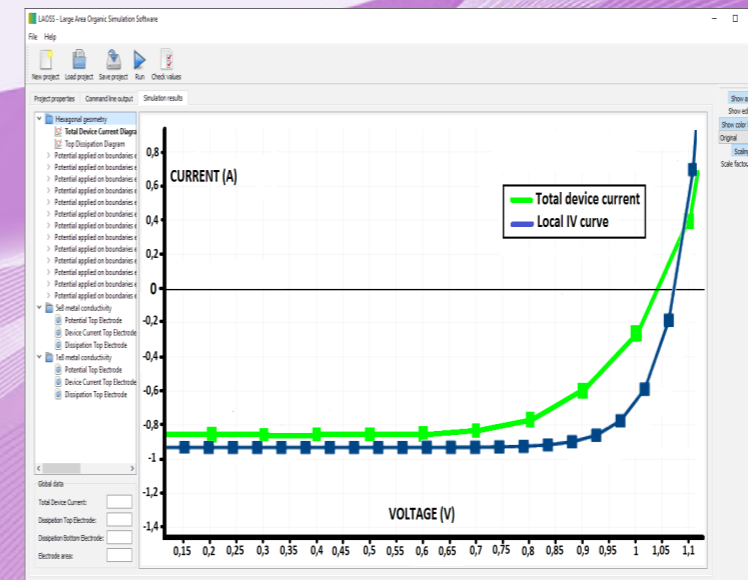
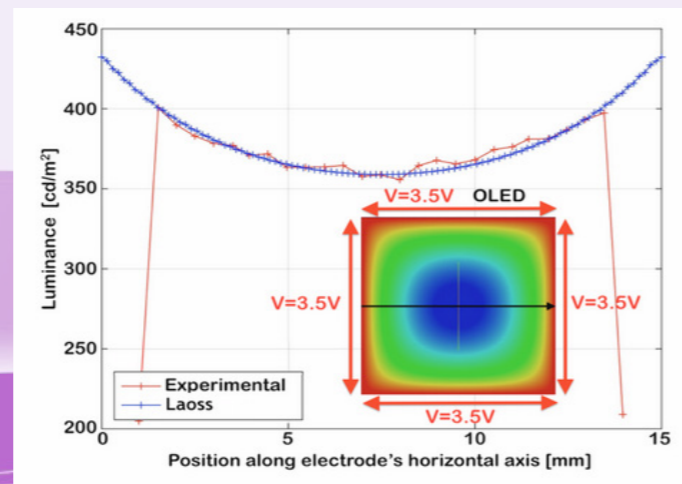
- **Design trade-off** in conductive grids:
 - » **Shadowing** by metal lines
 - » **Resistive performance losses** without grid
- Laoss allows to find the **optimal finger width and spacing** [1]
 - » **Simulate** the optimal grid geometry



Experimental Validation

- **Successful comparison** with experimental results from literature:

K. Neyts et al.: "Inhomogeneous luminance in organic light emitting diodes related to electrode resistivity", *J. App. phys.*, 100, 114513 (2006)

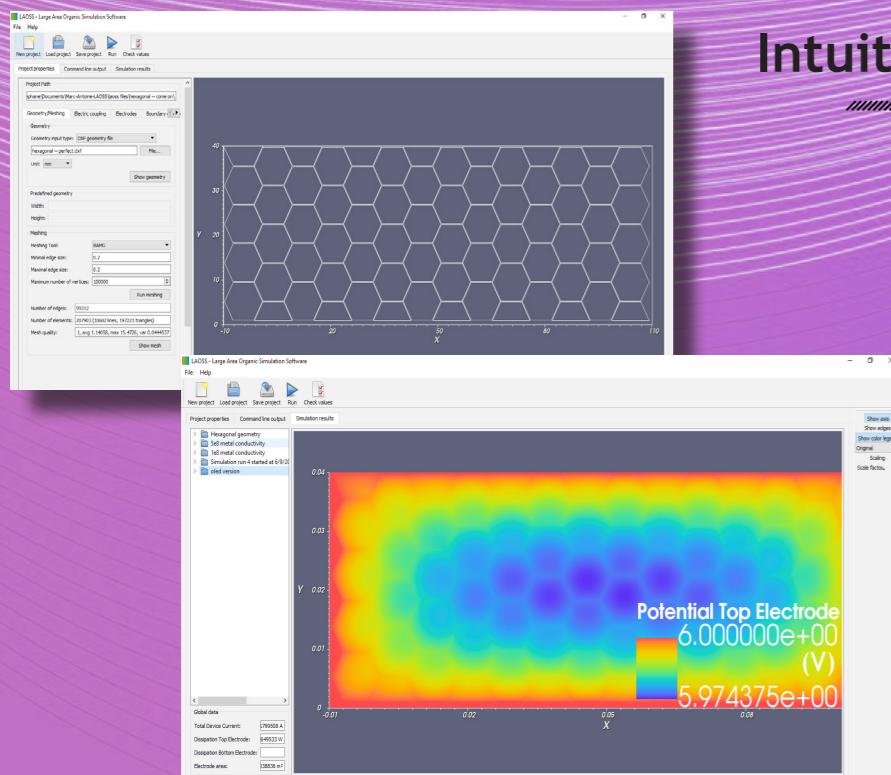


IV Curve in a Few Clicks

- Example **IV curve** simulation of an organic solar cell with an hexagonal metal grid
- Laoss **evaluates** solar cell **metrics**:
 - » Open-circuit Voltage
 - » Short-circuit Current
 - » Maximum generated Power
 - » Fill Factor

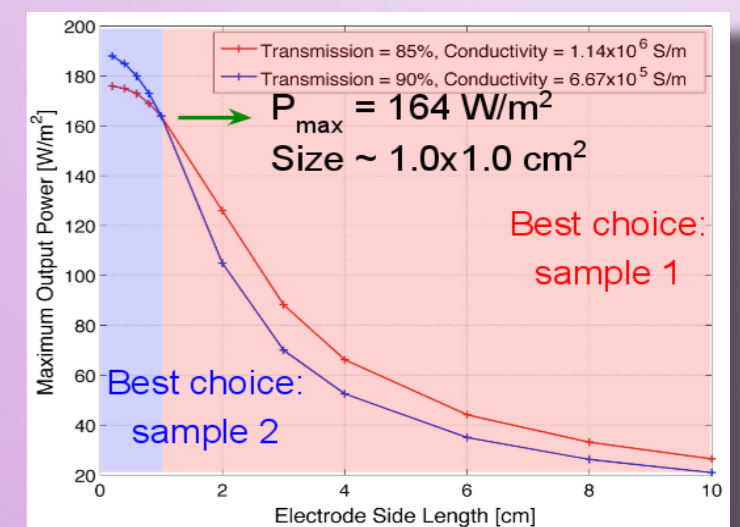
Intuitive Graphical Interface

- **Import** standard **CAD** files
- **Easy to setup**
- **Fast learning curve**
- Comprehensive **visualization**



Electrode Material Choice

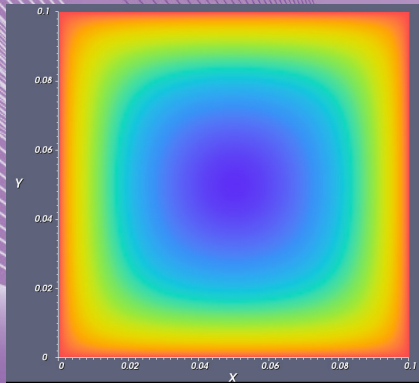
- **Transparency & conductivity** change with electrode thickness
- **Optimal choice** of transparent electrode **changes with device size** [1]
- Laoss can be used to **determine the best material choice** for a given device



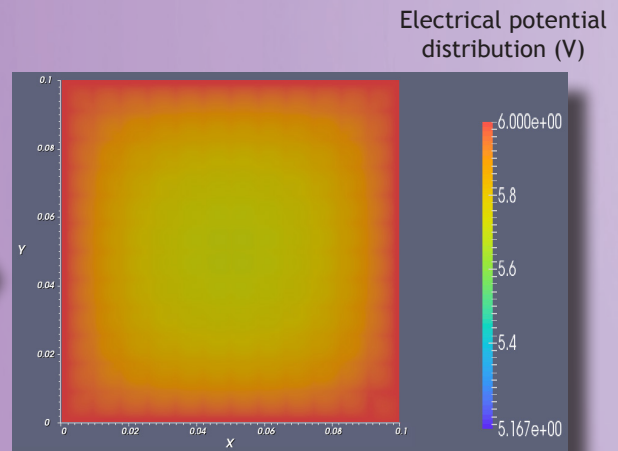
[1] S. Altazin et al.: "Optimization of silver nanowire transparent electrodes in solar cells", *EU-PVSEC Proceedings, 1AO.1.4, Munich, Germany, 2016*

Let Laoss improve your device designs today !

OLED Panel Optimization



Reference 10x10 cm² OLED without metal grid



OLED with a metal grid leading to more uniform potential

- Design electrodes for OLED panels with more uniform brightness

- » Minimize ohmic losses and optical shadowing
- » Improve the conductivity of the electrodes

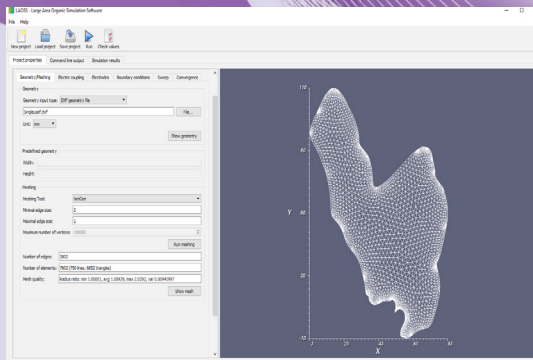
Design of Custom PV Modules

Free-form design idea of organic PV module by CSEM Switzerland [2]

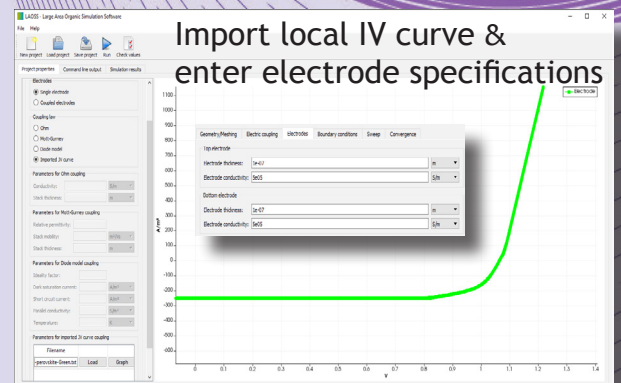
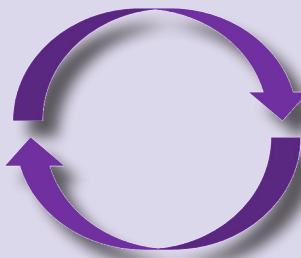


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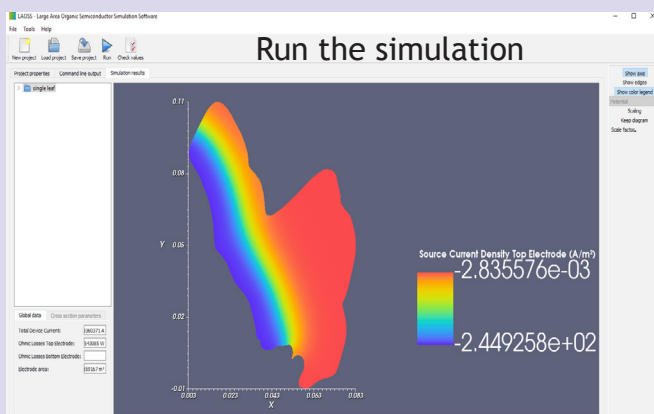
[2] CSEM Scientific & Technical Report 2015, page 66



Draw and import the device geometry, run meshing



Import local IV curve & enter electrode specifications



Run the simulation

Contact us

Interested in our products? Do you have any questions or special inquiries? Please contact us.

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