

# LUCEDA

## Photonics Design Platform

First-time-right Photonic IC Design Software



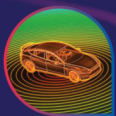
**CONTACT US  
FOR A TRIAL**

Supported on



## Design Fabrication-Ready PICs for Any Application!

Streamline your PIC design flow with IPKISS' single-component definition and parametric approach. Design and simulate your PICs for any application.



LIDAR



SPECTROSCOPY



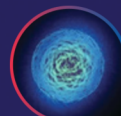
QUANTUM  
COMPUTING



CLOUD  
COMPUTING



TELECOM  
DATACOM



BIOPHOTONICS



AI



AR / VR



METROLOGY



AEROSPACE



### Reduce design errors

Automate and integrate all aspects of your PIC design flow in one design environment and reduce design errors



### Design manufacturable PICs

Build and manage your own design library and access a wide variety of foundry process design kits (PDKs)



### Leverage one standard language

Use one standard language for all aspects of your design flow through a Python-based platform



### Improve the time to market

Document, maintain and reuse your IP, adopt an iterative design cycle and reduce the time to market

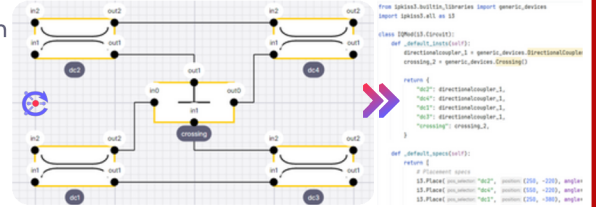


# LUCEDA IPKISS

Luceda IPKISS takes you through the complete design flow:

## Schematic Capture With Code Assistance

- ✓ Abstract-level conceptualization before layout implementation
- ✓ Schematic capture and drag-and-drop component placement
- ✓ Circuit analysis and simulation in a schematic environment
- ✓ Enhanced communication around your design process



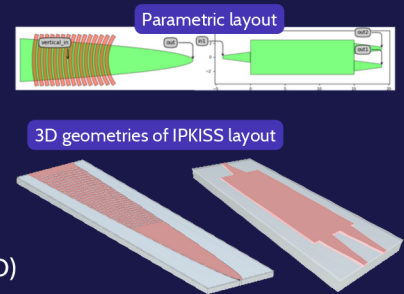
## Component Design

- ✓ Standard language: Python
- ✓ Parametric components in layout & simulation
- ✓ Virtual fabrication
- ✓ Built-in physical EME simulation
- ✓ Simulations with 3rd-party tools (e.g. Ansys Lumerical, CST Studio Suite, Tidy3D)

```
mmi = pdk.MMI1x2Optimized1550()
fgc = pdk.FC_TE_1550()

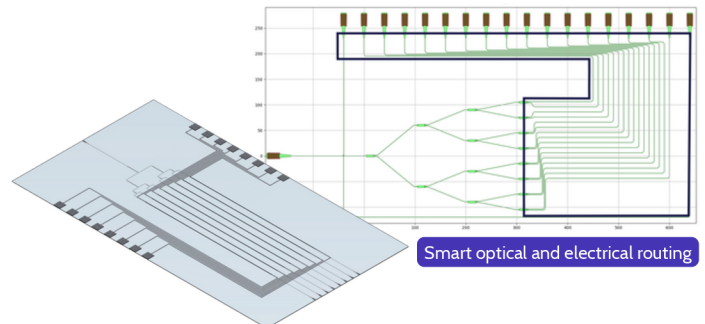
splitter_tree = SplitterTree2Levels(splitter=mmi, fgc=fgc)
splitter_tree_layout = splitter_tree.Layout()
splitter_tree_layout.visualize(annotate=True)
splitter_tree_layout.write_gdsii("splitter_tree_2_fgc.gds")

splitter_tree_cm = splitter_tree.CircuitModel()
wavelengths = np.linspace(1.45, 1.65, 1001)
S_total = splitter_tree_cm.get_smatrix(wavelengths=wavelengths)
```



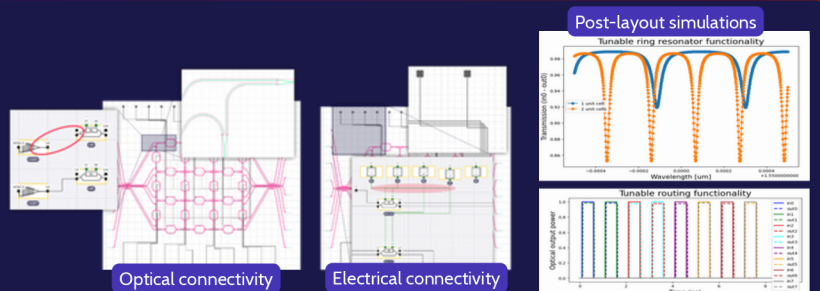
## Circuit Design

- ✓ Code-driven circuit design
- ✓ Smart optical and electrical routing
- ✓ Parametric circuits with tight link layout-simulation
- ✓ Circuit simulations with CAPHE simulation engine
- ✓ Easy communication around the design process



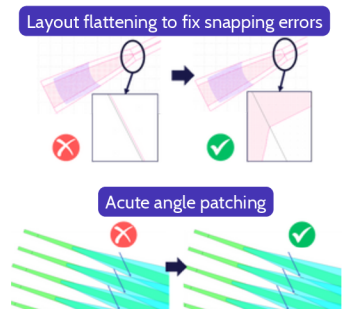
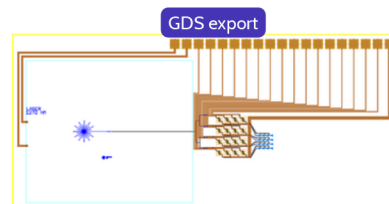
## Design Validation

- ✓ Connectivity and functional verification with IPKISS Canvas
- ✓ Netlist extraction (optical and electrical)
- ✓ Post-layout simulations with CAPHE



## Tape-out Preparation

- ✓ Acute angle patching
- ✓ Snapping errors
- ✓ Full GDS export
- ✓ Design Rule Checking (DRC) via integration with Spark Photonics' Check Mate DRC tool and KLayout DRC engine





# LUCEDA DESIGN KITS

Gain access to a wide range of foundry PDKs, ADKs, and TDKs. Design and tape out to your foundry of choice.

Scan to discover  
all Luceda  
PDKs, ADKs & TDKs



| Silicon (Production)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Silicon (Prototyping)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Silicon Nitride                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <div><div>amf</div><div>ADVANCED MICRO FOUNDRY</div></div> <div><div>OpenLight</div></div> <div><div>ihp</div></div> <div><div>IMECAS</div></div> <div><div>武豊光电<br/>WUYUEOPTO</div></div> <div><div>imec</div></div> <div><div>AIM<br/>PHOTONICS</div></div> <div><div>CompoundTek</div></div> <div><div>leti<br/>c22 tech</div></div> <div><div>UMEC<br/>聯合微電子中心(香港)</div></div> <div><div>SILTERRA</div></div> <div><div>Tower<br/>Semiconductor</div></div> <div><div>SITRI</div></div> | <div><div>CORNERSTONE</div></div> <div><div>AUSTRALIAN<br/>SILICON<br/>PHOTONICS</div></div> <div><div>SiEPIC<br/>FAB</div></div> <div><div>SiPhotonIC<br/>TECHNOLOGIES</div></div> <div><div>POLARITON</div></div> <div><div>ANT NANOSOI<br/>Integrated Photonics Fab</div></div> | <div><div>LIGENTEC</div></div> <div><div>Lionix<br/>INTERNATIONAL</div></div> <div><div>CORNERSTONE</div></div> <div><div>imec<br/>PIX4life</div></div> <div><div>SOLINIDE<br/>PHOTONICS</div></div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <div><div>SMART<br/>PHOTONICS</div></div> <div><div>Fraunhofer<br/>HHI</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <div><div>AUSTRALIAN<br/>SILICON<br/>PHOTONICS</div></div> <div><div>LXT</div></div> <div><div>CRAFT</div></div> <div><div>CHIPX</div></div> <div><div>csem</div></div> <div><div>南智光电<br/>IOPTTE</div></div>                                                          | <div><div>ALUVIA</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <div><div>phix<br/>PHOTONICS ASSEMBLY</div></div> <div><div>Tyndall<br/>National Institute<br/>Institute Nanoscience</div></div> <div><div>ALTER</div></div> <div><div>VLC<br/>PHOTONICS<br/>A Hitachi Group Company</div></div> |

## ACCESS A COMPLETE DESIGN ECOSYSTEM

Design manufacturable PICs, automate testing and validation for your photonic design IP, create AWGs with a click, leverage Luceda Links to run FDTD/EME simulations, export cells to L-Edit, or perform DRC checks on IPKISS layouts—it's all in your hands!

### Flagship Products



Luceda IPKISS



Luceda AWG Designer



Luceda IP Manager



Luceda Circuit Analyzer

### Partner Integrations

DEVICE SIMULATION



Link for Ansys Lumerical



Link for Tidy3D



Link for Dassault Systèmes Simulia



Link for Siemens EDA



Link for Check Mate DRC



OptiLUCEDA CoSim



# LUCEDA ACADEMY

Enhance your design skills with a wide range of tutorials and application examples on Luceda Academy.

## Filters

- CWDM transmitter using cascaded MZI lattice filters
- Temperature sensing with SOI waveguide Bragg gratings
- AWG filter demultiplexer
- AWG filter for integrated optical coherence tomography (OCT)

## Active devices

- Mach-Zehnder Modulator
- QSCE-based Electro-absorption Modulator
- IQ Modulator
- Optical Phased Array (OPA)
- Quantum Key Distribution
- Programmable Photonics
- 400G Optical Transceiver



# TRAINING & SUPPORT

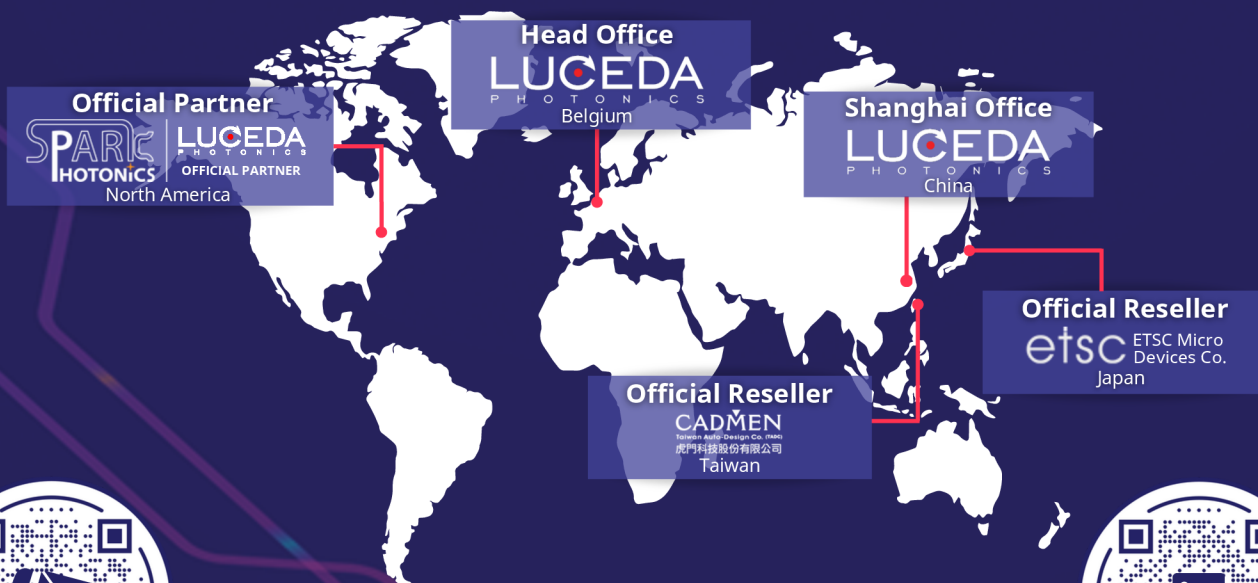
- Access to kickstart training
- Luceda Academy with tutorials and application examples
- Training material and documentation
- Expert support team to help you achieve your goals successfully
- Application support
- Customer portal for problem resolution and software updates



# SERVICES

- Foundry and custom PDK development
- DRC deck implementation
- PDK software implementation and training
- Design flow optimization
- Specialized training with our experts

# GLOBAL PRESENCE



[www.lucedaphotonics.com](http://www.lucedaphotonics.com)

