

# Bright Photonics

Design House for Turnkey PIC development

## Feasibility

- Technology assessment
- Performance and yield assessment
- Risk assessment
- Optical sub assembly solutions
- Supply chain analysis
- BoM, economical assessment



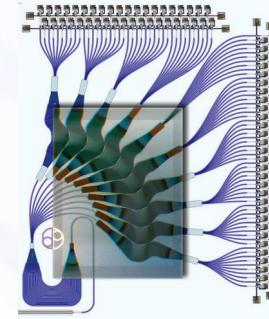
## Software

- best in class PDKs
- flexible: open source framework
- validation at circuit and layout level
- cloud based options
- test bench
- digital twin



## Design

- Simulations
- Circuit
- Layout
- IP blocks
- Design support

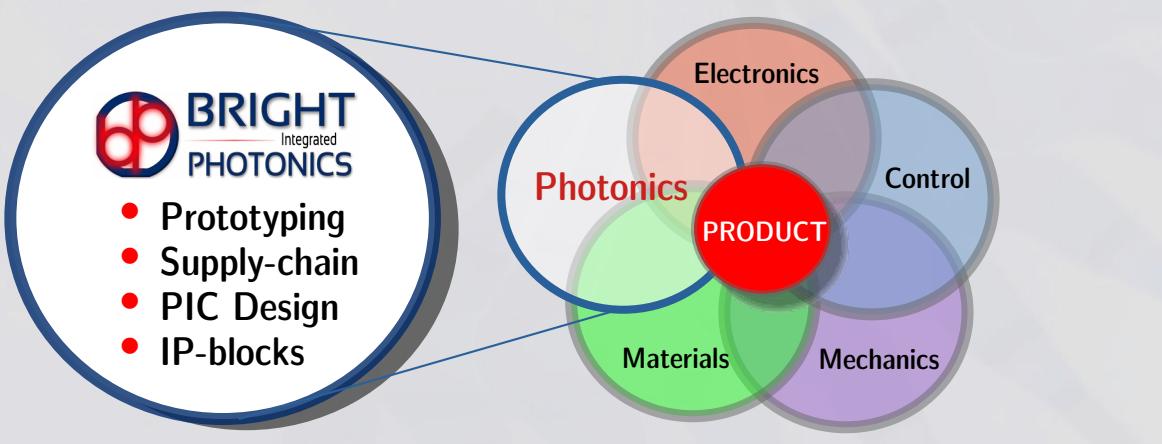


## Testing

- 1 to 10000 dies per project
- 300 mm wafers
- nm accurate alignment in secs
- Edge & grating coupling, free space beams
- Single fiber to 50+ fiber arrays
- Electrical multi probes (100+ channels per PIC)



# Empowering products with photonic engineering since 2010

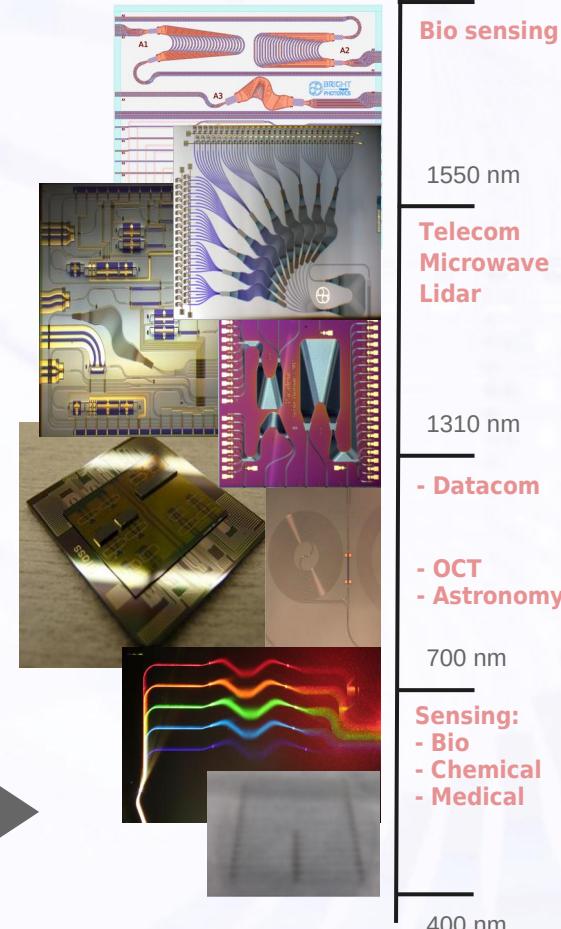
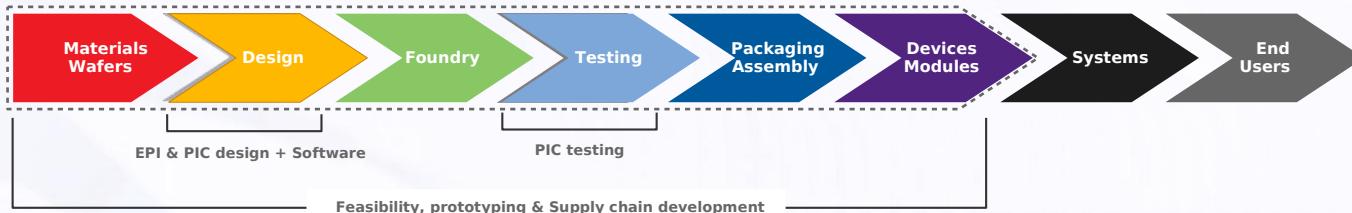


## Markets:

- Telecom & Datacom
- Microwave Photonics
- Bio & Medical
- Sensing & Metrology
- Aerospace & Lidar
- Astronomy

## Technologies:

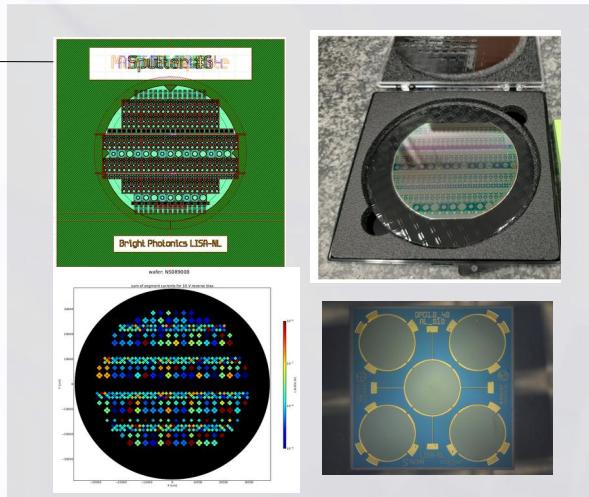
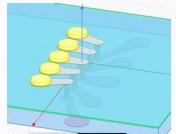
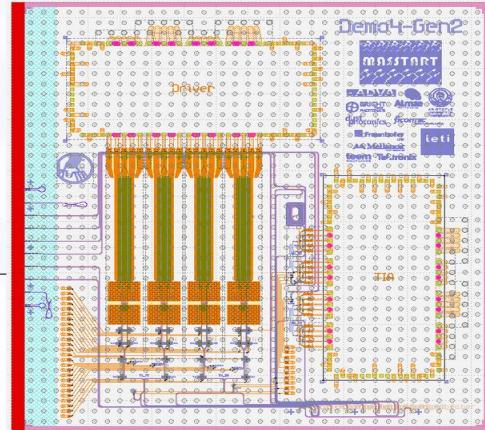
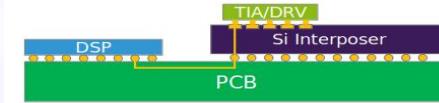
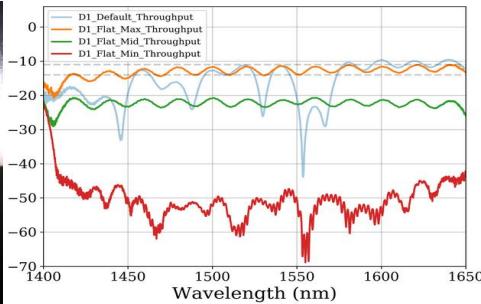
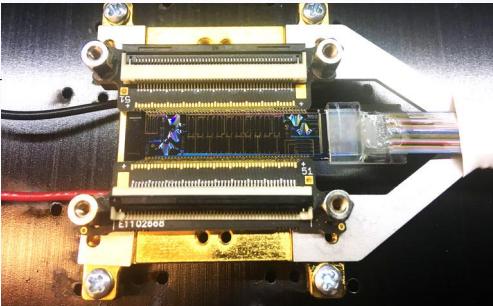
- SOI
- InP
- SiN
- SiO<sub>2</sub>
- TFLN
- Polymer



# Application examples

## Quality driven towards tailored solutions

- LISA (ESA)
- Astronomy (JPL/Caltech/NASA)
- Satcom (TNO)
- Beam formers (Aerospace)
- 1.6+ Tb/s (Nvidia, Adva for datacom and AI)
- PON (consumer market Internet access)
- Metrology (ASML/KLA)
- QKD, QRNG (link security in fiber and satcom)
- Medical (glucose sensing, OCT)



# IP building block examples

## Quality driven towards tailored solutions

- Lasers:
  - FP, DFB, (SG)DBR, Custom (tunable), lock-in lasers

- Modulators:
  - Dual-Polarization IQ Modulators

- Detectors, Hybrid-90

- Spot-size converters, grating couplers

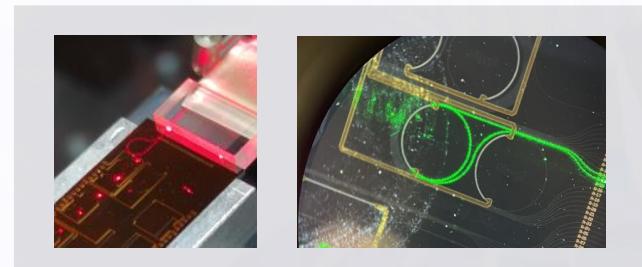
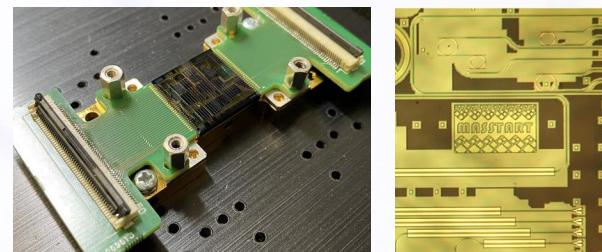
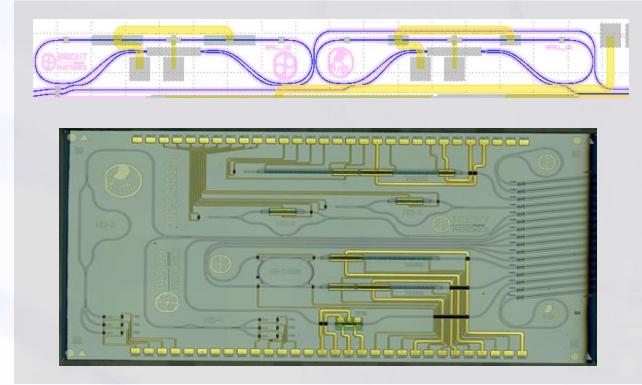
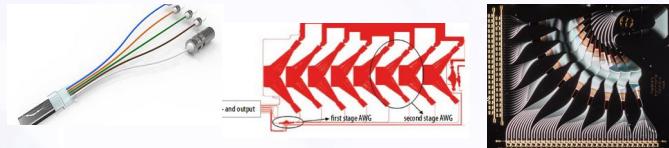
- Power couplers and splitters

- Polarization beam splitters and rotators

- Optical filters and spectrometers
  - High resolution, broadband from VIS to IR
  - Optical filters (add-drop, pass through)

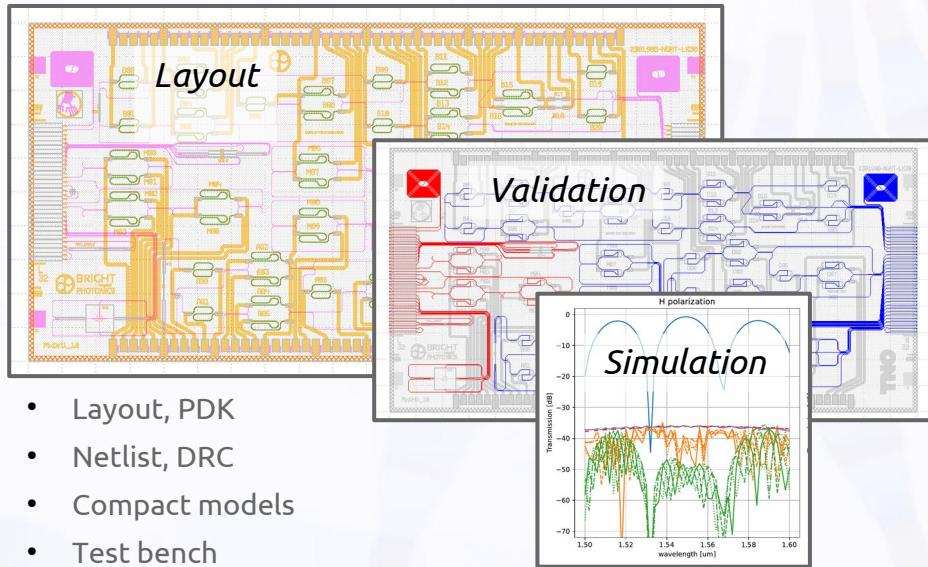
- Arrayed waveguide gratings

- Datacom, Telecom, Sensing



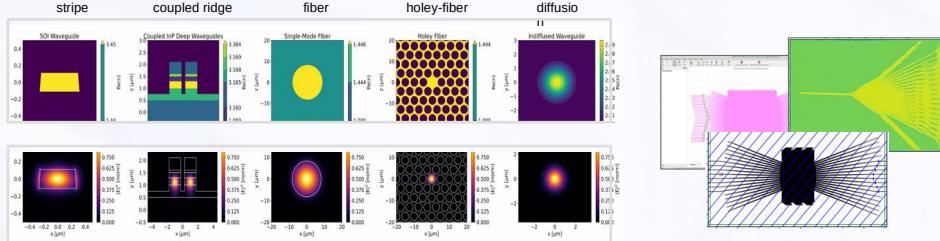
# Nazca Design

## PIC design software with advanced validation and tests



- Layout, PDK
- Netlist, DRC
- Compact models
- Test bench
- Digital twins

### Solver interfaces



### PDK, TDK, ADK:

- Smart Photonics
- Fraunhofer HHI
- IMEC, LETI,
- AMF, Tower,
- LioniX, Ligentec
- Lightium,
- Phix
- etc



### Cloud enabled design, validation and PDK creation

