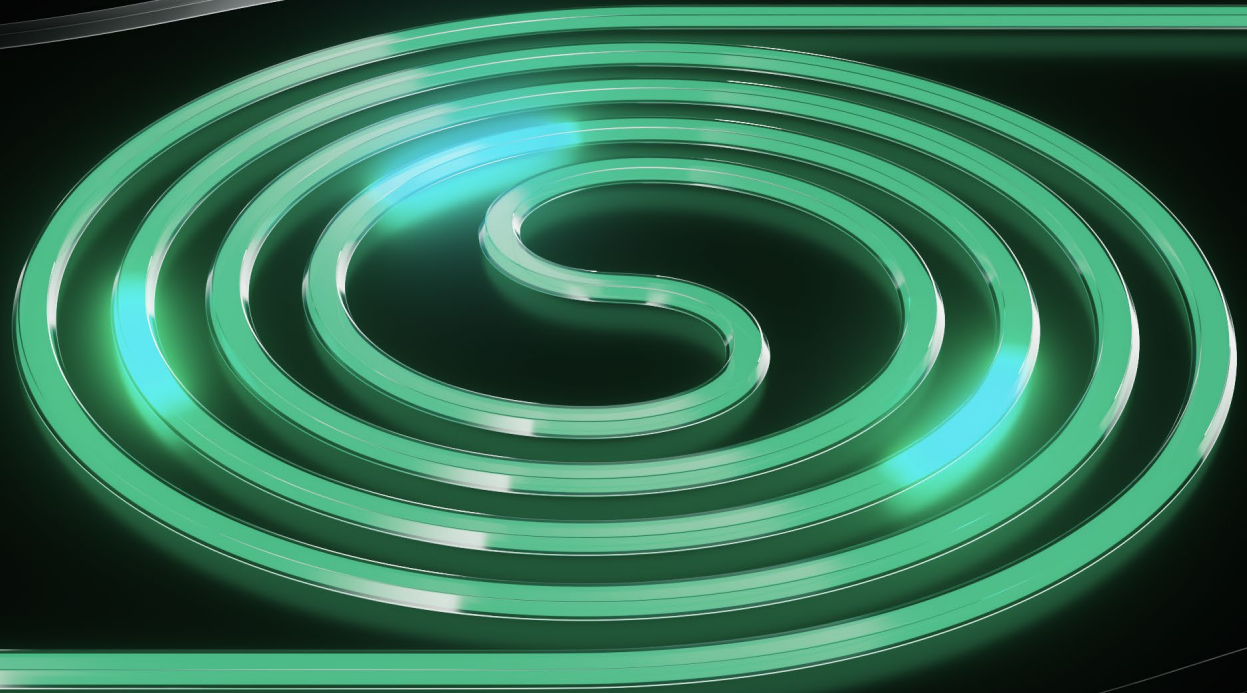
EDWATEC

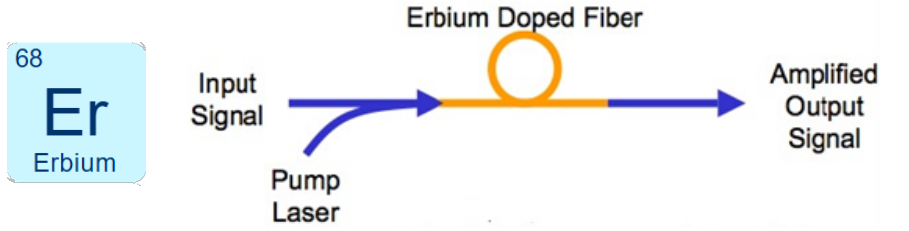
Boosting Light to Transform Connectivity



Dr. Amir Youssefi, CTO & Co-founder

Erbium Doped Fiber Amplifiers (EDFA)
revolutionized optical communication and the internet

- High gain & low-noise optical amplification
- Temperature insensitive
- Enabled multi-channel / WDM communication
- Enabled long distance fiber links and submarine links

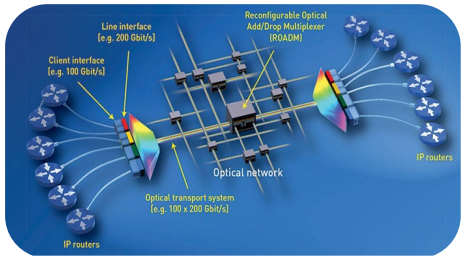


EDFA
1990

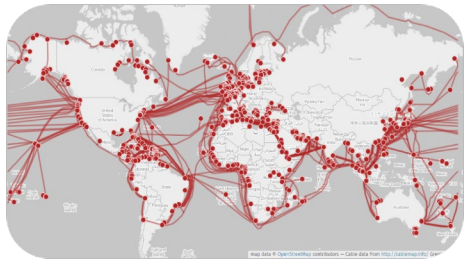
Mini-EDFA
2000

Micro-EDFA
2010

Optical networks

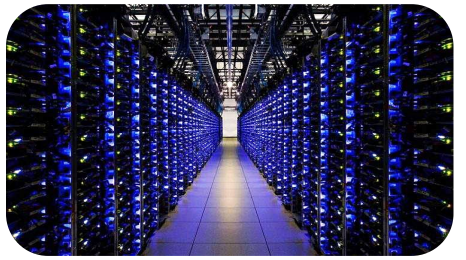


Submarine links



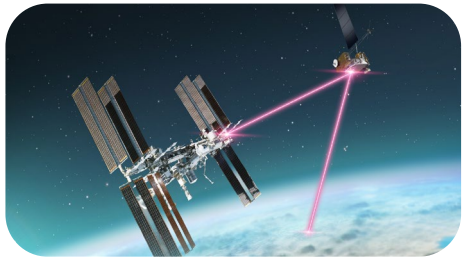
Optical Sensing

Data Center Interconnect



5G/6G network

Satellite Communications



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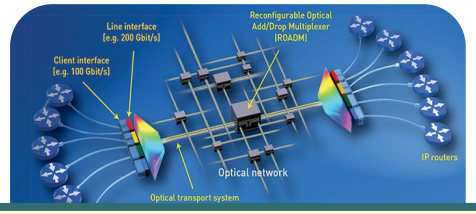
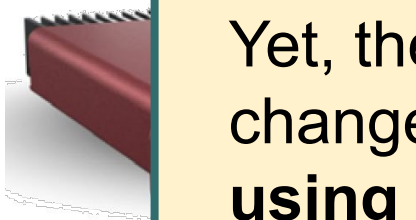
Optical networks



Data Center Interconnect

Erbium Doped Fiber

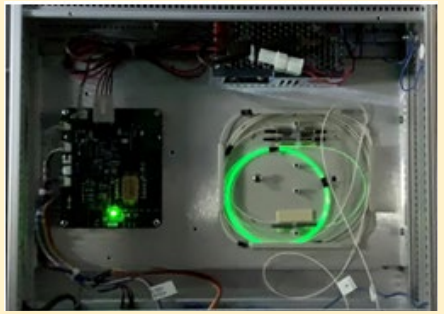


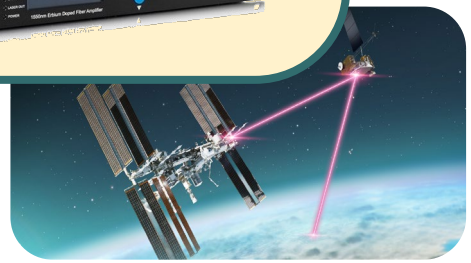
EDF
1990

Mini-EDFA
2000

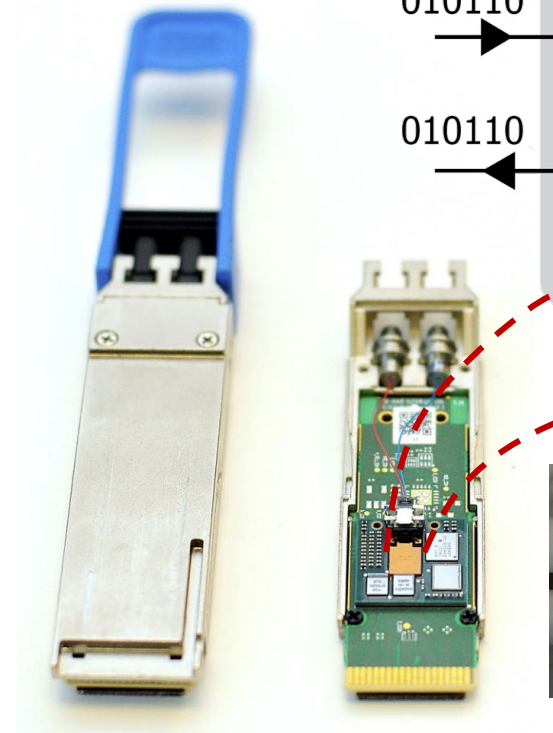
Micro-EDFA
2010

Since its invention in 1986, the EDFA has become the workhorse of optical communications. Yet, the manufacturing principles have hardly changed - **EDFAs are still manually assembled using coils of optical fibers.**



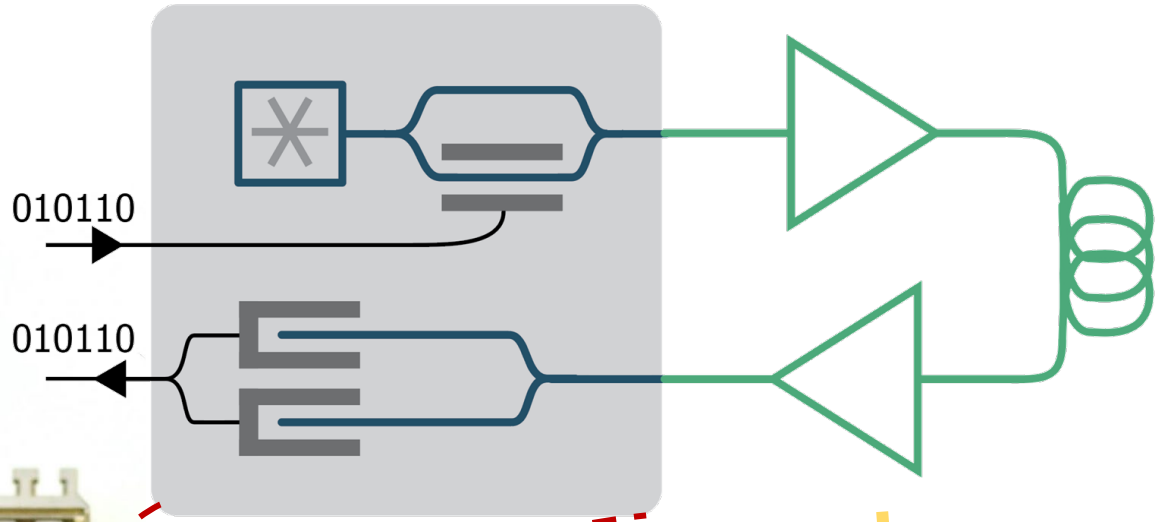


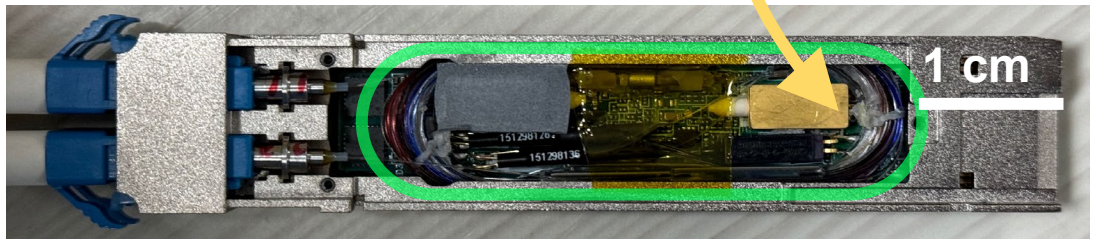
Market opportunity: AI data center interconnects



lasers, detectors, modulators, and routing are integrated in Silicon Photonics.

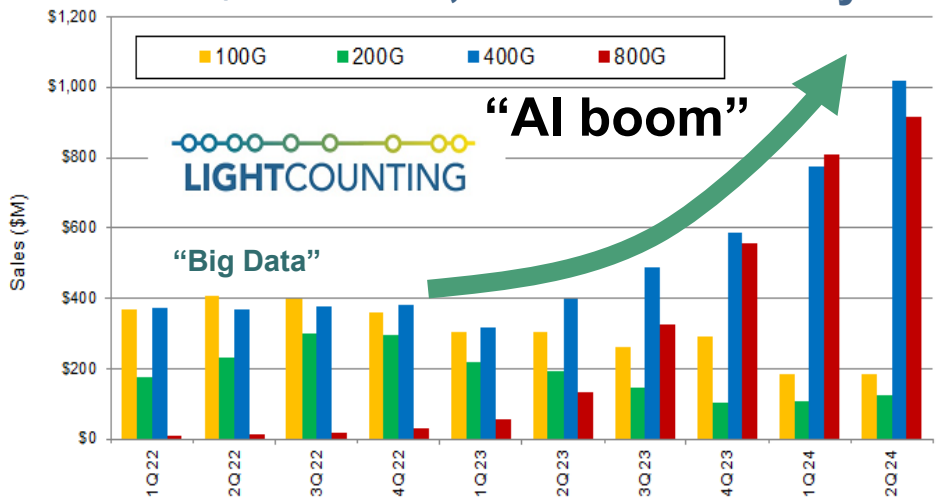
Integrated (on-chip) **Off-chip amplifiers**





A pluggable module with spool of fiber amplifier inside

Optical Transceiver Market
$10 billion, 50 million units/y



Quote from a customer:
"Each EDFA unit poses $200 on the price of transceivers, crucial to be reduced." And he added "III-V SOAs won't work for today's high-speed transceivers."

EDWATEC's Vision:
Revolutionizing optical amplification

USPs:

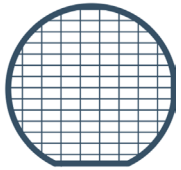
High performance

30 dB gain
200 mW power
<5 dB noise figure

Cost efficient

fraction of EDFA cost

Scalable & Driving Integration

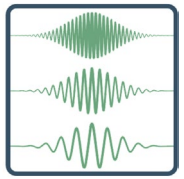


Enabled by
Silicon Photonics
foundry process

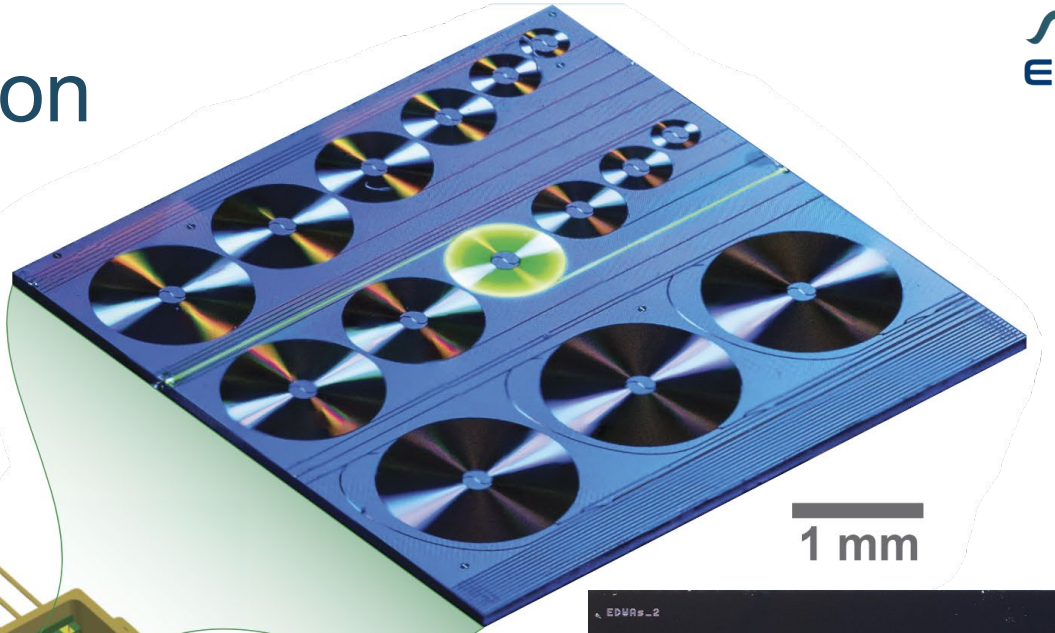
Compact

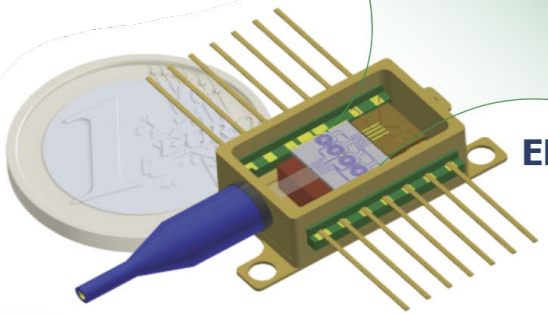
1000-fold
less footprint

Broad band



C+L band
Potential extend to O-band





Erbium-doped fiber amplifiers

Traction: Progress in 18 months

EDWATEC Incorporation Q3 2023

5 years of technology development at EPFL

CHF 850k tech transfer grant for EDWATEC

European Innovation Council

esa

Exclusive license agreement with EPFL

Several signed NRE contracts &
More ongoing contract discussions with industry leaders

Secured CHF 3.5 m funding from the Swiss government and investment

Innosuisse

Tradeshows in US, Europe, and China

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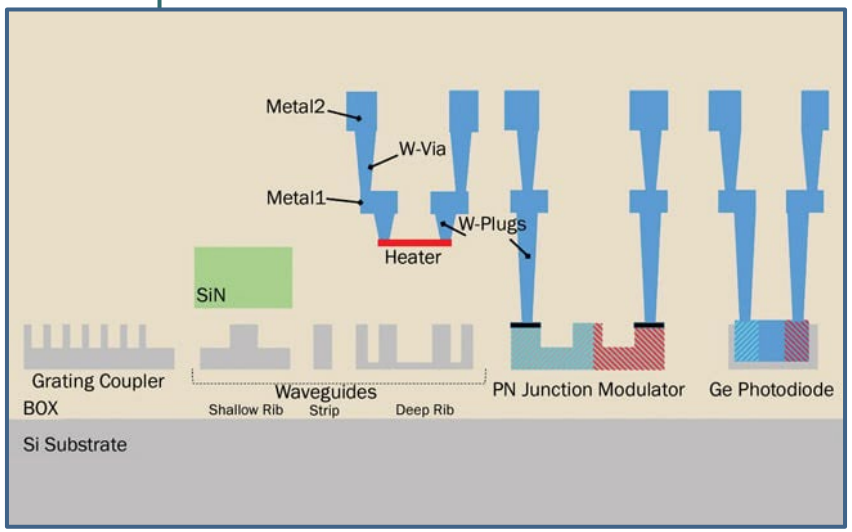
EDWATEC establishes its own wafer-scale manufacturing

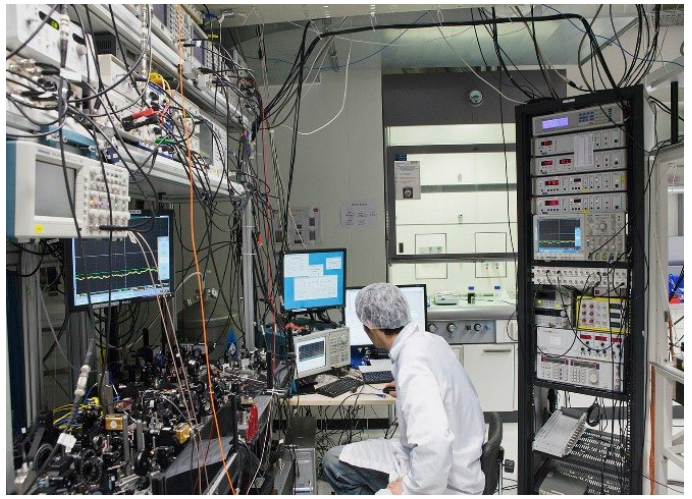
Silicon photonics integration for foundry volume products

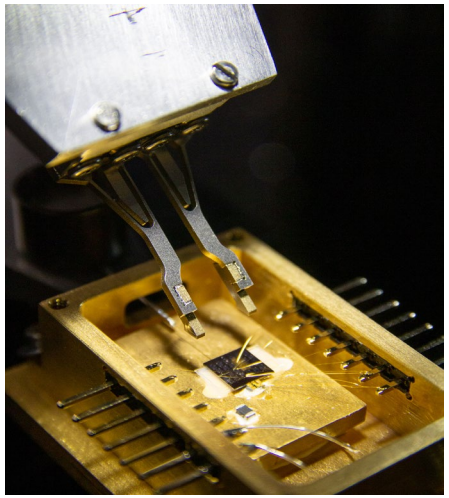


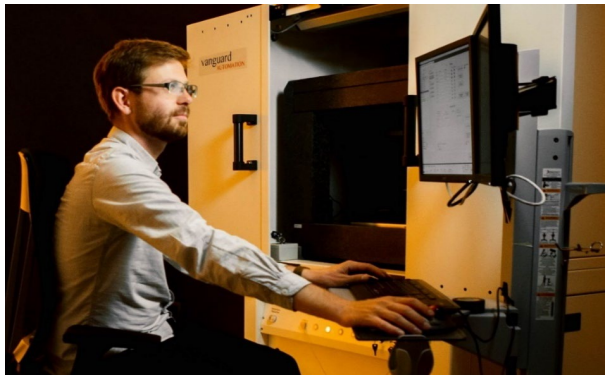
Capabilities

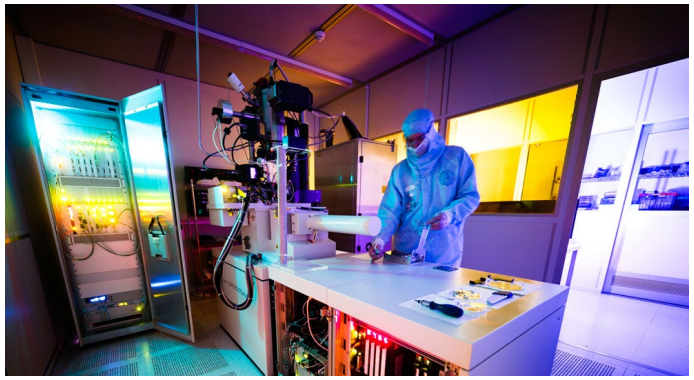
Design house, nanofabrication, characterization, photonic packaging, laser characterization

- Internal instruments and PDK for PIC and laser design
- In-house **nanofabrication** of Si3N4 waveguides with a **lead time of 8 weeks**
- In-house **packaging**
- In-house **automated high-volume characterization** of PICs optical properties
- **Optical characterization** (Menlo OFC, Menlo 1 Hz laser, etc.)
- In-house **photonic packaging**
- Access to **photonic wire bonding** tools
- Access to **Ficontec optical packaging** machine (Q2 2024)









EPFL CMi EPFL Center of MicroNanoTechnology


Thank you
contact: info@edwatec.com
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