



# Corporate Intro and Technological overview

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## Who We Are



## Montréal

Home of our  
Silicon Nitride innovations

SiN Photonics Integrated Circuits (PICs)  
Design, Fab, and Opto-Electro  
Packaging

Founded in 2012

*40 Employees*

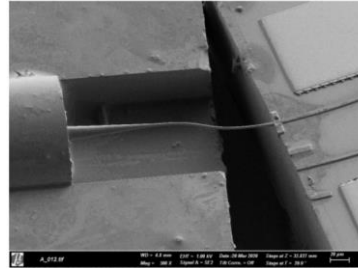
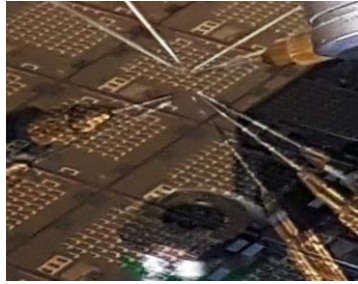
CAD 42M funding to date

*39 issued Patents*

# Technology



**Rapid  
prototyping  
by  
utilizing the  
best devices,  
connected via  
Photonic Wire  
Bonding**



## Silicon Nitride Photonics

- Design and Fab
- Precision waveguides
- Filters and Pol. management
- MEMS, Cavities, & Membranes

## Hybrid Integration

- Photonic Wire Bond
- Lasers and amplifiers/SOAs
- Photodetectors/APD/MPD
- Isolator waveguide

## Co-packaging PIC and Free Space

- Isolators, Circulators
- Other PICS (SiPh, LiNbO<sub>3</sub>, etc)
- Free space components

## Electronics, Packaging, and Test

- Control systems
- Cost-effective packaging
- High volume test

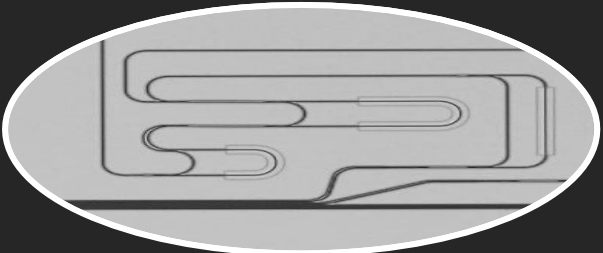
Low losses, Low noise  
Wide temperature range  
Wide Wavelength Range  
Energy efficient

Fast prototyping  
High performance  
Lower development cost  
Wider range of components

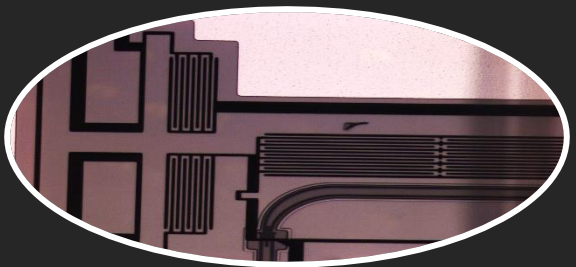
System approach  
One stop shop  
Faster time to market

# AEPONYX CORE EXPERTISE

SiN-Based passive integrated photonics



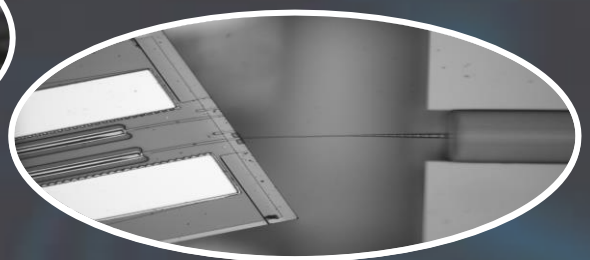
MEMS optical Switching



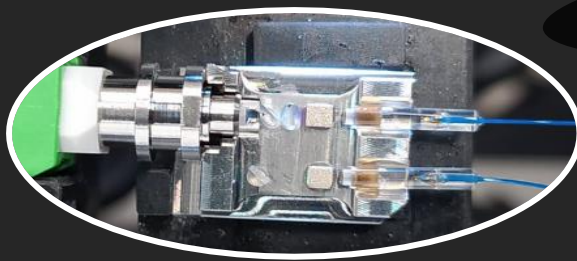
In-PIC integration of active S/C devices



PWB for optical coupling to active S/C devices



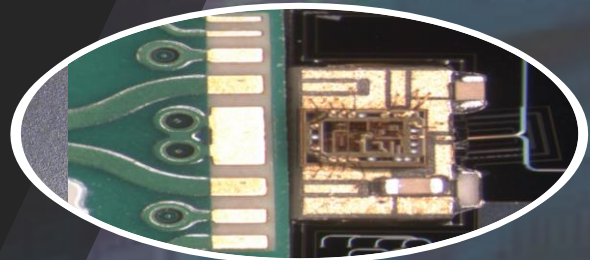
Free Space Optics



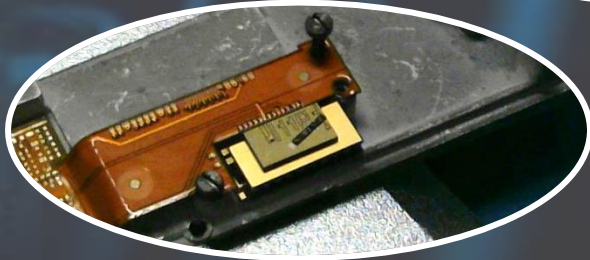
Power and logic electronics design



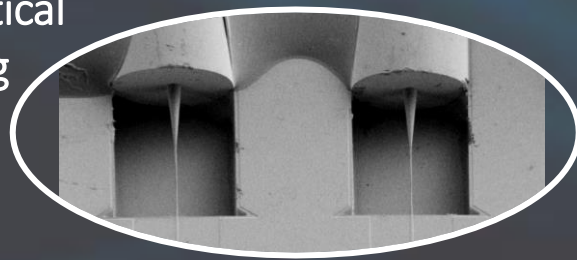
On-Chip RF signal management



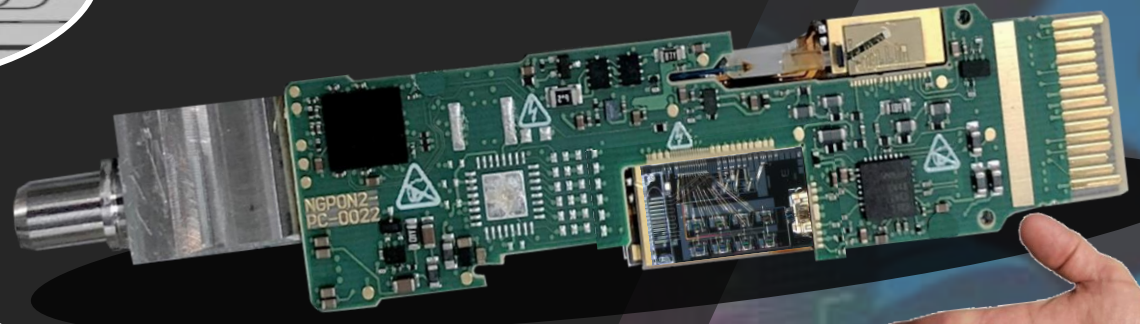
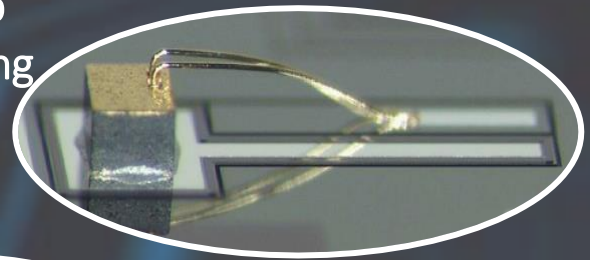
Active thermal management



Output optical coupling



On-Chip monitoring

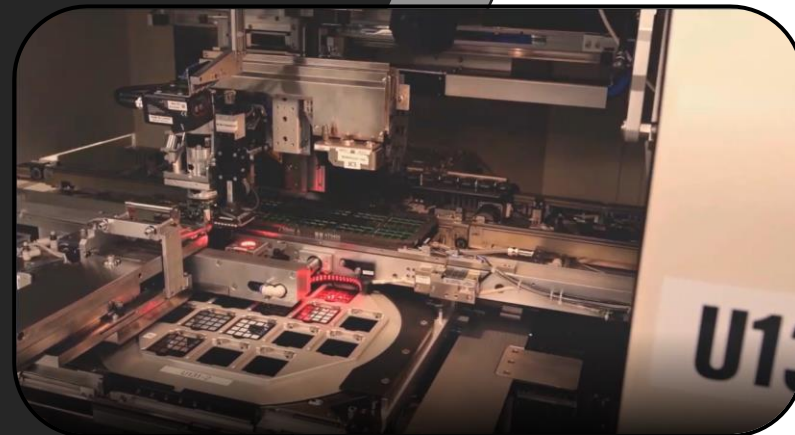


# The C2MI



## 200mm MEMS/MOEMS processing Fab

- LPCVD/PECVD Si and Ceramics
- 400nm Lithography
- (Deep) Reactive Ion Etching
- Physical Vapor Deposition of metals
- Direct Wafer Bonding
- Chemical Mechanical Polishing
- Laser Dicing



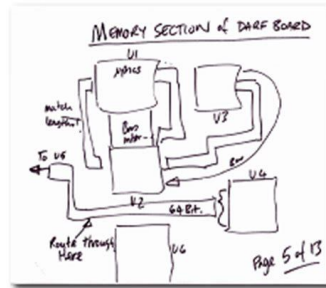
## Photonic/electronic packaging facilities

- Photonic Wire Bonding
- Fiber Attach (active and passive)
- Die Attach
- Wire Bonding
- Stud Bumping
- Flip Chip
- PCB prototyping and assembly
- Pick-n-Place
- Die-level processing

# Working with AEPONYX

## *Rapid Innovation*

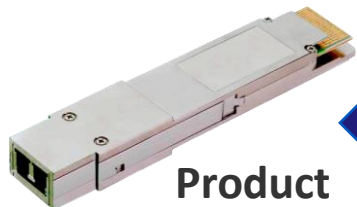
### Concept



Optical & Electrical  
Integration

- Design
- Simulation
- Fab
- Iterate
- Integration
- Assembly
- Test
- Qualification

Cost Optimization & TTM



*You bring the need  
AEPONYX brings the  
solution*

# SUMMARY



Partnerships are enablers of success  
Silicon Nitride Photonics has a solid future  
Combining it with MEMS takes it even further  
Use systems thinking and pick an experienced partner  
Integration and packaging create new opportunities

**THANK YOU!**  
[WWW.AEPONYX.COM](http://WWW.AEPONYX.COM)