



Investor Presentation
May 2026

NASDAQ
ALMU

Forward Looking Statements



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The Aeluma Vision

Build the world's highest performance
semiconductor chips with scalable
manufacturing

Background Story: Gallium Nitride (GaN) and the Blue LED



A materials breakthrough that enabled an industry and more

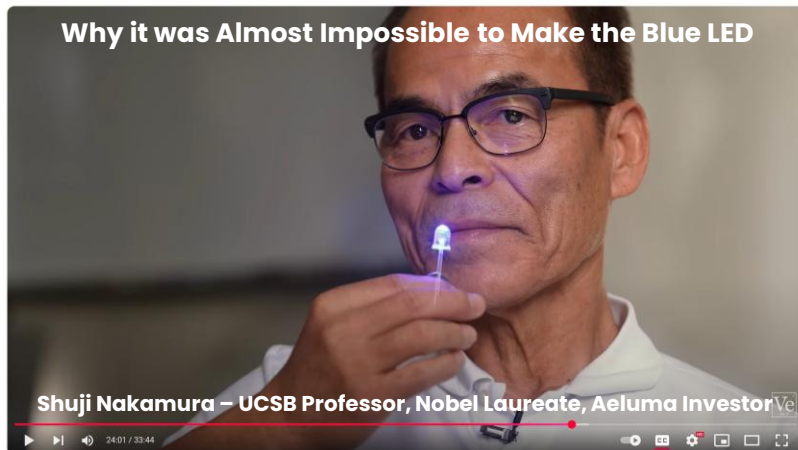
“These won’t ever replace the kitchen light.”

“The research is a waste of money.”

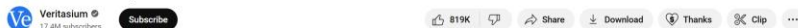
The blue LED revolutionized lighting and displays, and gallium nitride broadly impacted many photonics and electronics applications.

LEDs use **75% less energy** and last **25 times longer**

Energy savings by 2035 of **569 TWh** (92 1,000 MW power plants)



Why It Was Almost Impossible to Make the Blue LED



31M views · 1 year ago
The blue LED was supposed to be impossible—until a young engineer proposed a moonshot idea. Head to <https://brilliant.org/veritasium> to start your free 30-day trial, and the first 200 people get 20% off an annual premium subscription.
...more

<https://www.youtube.com/watch?v=AF8d72mA41M&t=1399s>



Aeluma's Indium Gallium Arsenide (InGaAs) Breakthrough



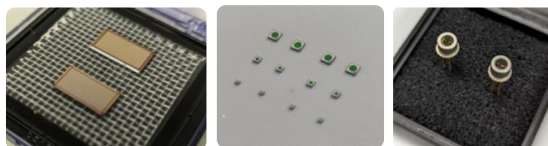
Best-in-class materials with scalable manufacturing

"InGaAs on silicon won't work, people have tried."

"You can't grow quantum dots by MOCVD."

InGaAs is the best material for shortwave infrared (SWIR) applications, impacting defense & aerospace, mobile and consumer electronics, AI infrastructure, industrial and robotics, quantum, and automotive.

Eye safe, operation in direct sunlight, night vision, higher sensitivity, higher speed, lower power consumption, and lower cost



Company Overview



Transformative Technology

- Best-in-class materials with large-volume manufacturing
- **~36 issued and pending patents**



Capital-Light Manufacturing

- Primarily outsourced manufacturing for rapid scaling
- Proprietary steps in house
- **ISO 9001:2015** certified



Significant Business Traction

- Disruptive tech validated by U.S. agencies and customers
- Sampling, NRE, initial sales
- **20+ customer engagements**



Talented Team

- **27 people**
- Engineering, Manufacturing, G&A, Business Development



State-of-the-Art Facilities

- Materials Production
- Test and Validation
- **12k total sq. ft.** (7.5k sq. ft. R&D/Manufacturing)



Strong Financial Outlook

- Recurring R&D revenue (\$4.7M FY25)
- Nasdaq listed
- No debt or overhang
- **~\$37.8M** cash at 3/31/26

Headquarters in Goleta, California



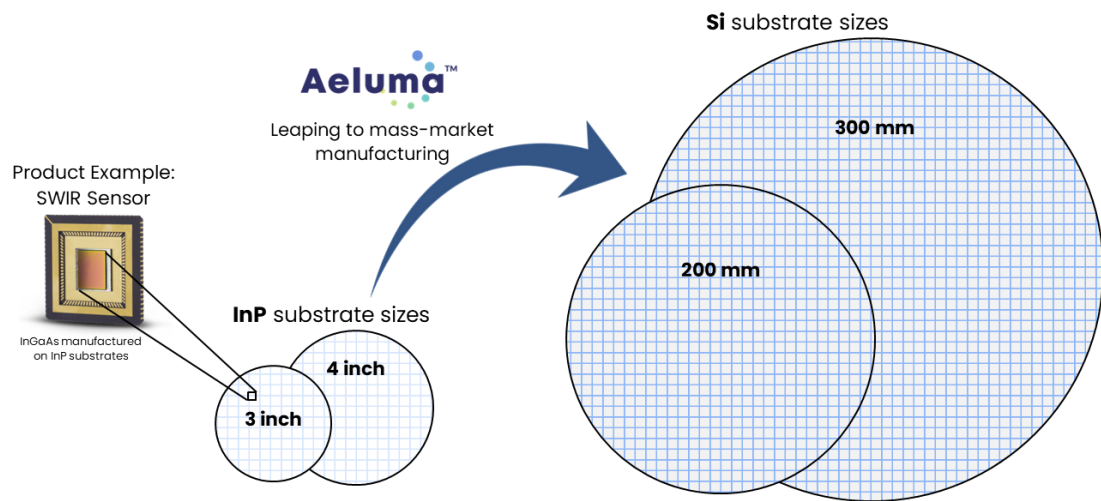


Innovation & Technology

Next-generation photonics with large-diameter wafer manufacturing

Aeluma's Breakthrough in Semiconductor Manufacturing

The Foundation for Next-Generation Photonics

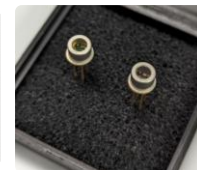
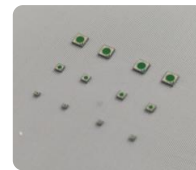
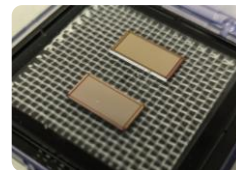


- ✓ Overcomes supply chain constraints
- ✓ Highly automated manufacturing
- ✓ CMOS integration
- ✓ 3D wafer-scale packaging
- ✓ 5-10X lower manufacturing cost

The World's First 300 mm InP-on-Si wafer



Products: InGaAs image sensors, high-speed photodiodes
Markets: Mobile, AI, Datacom, D&A, Quantum

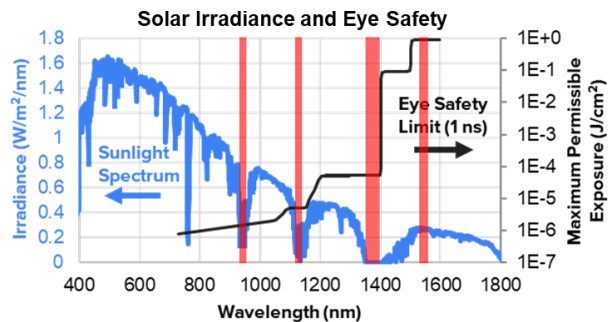
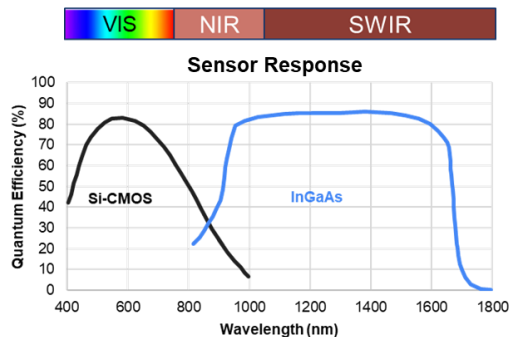


Why Aeluma and Why Now?

Shortwave Infrared (SWIR) Sensors for Mobile and Consumer Electronics



What is SWIR?



SWIR sensors needed for eye safety and other benefits

Face ID



Automotive sensors



3D scanner

AR/VR



Health monitoring



Radical approach required to scale and reduce cost

Manufacturing for Mass Markets

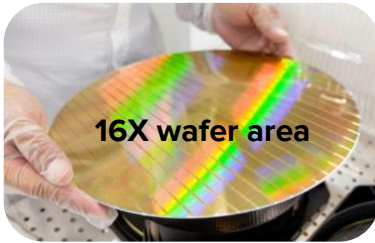
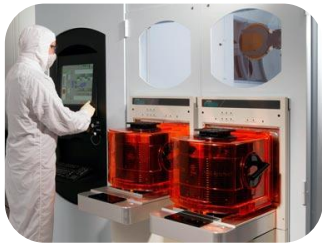


Aeluma's Large-Diameter Substrate Manufacturing: Economies of Scale

Incumbent technologies cannot meet volume and cost requirements for consumer markets. Aeluma's manufacturing enables scaling and cost reduction required for mass markets.



	Substrate size	Wafers for 20 million chips	Typical fab capacity
Incumbent technologies	3 inch	425k wafers	1k-10k wafers per month
	4 inch	213k wafers	1k-10k wafers per month



 Large-diameter platforms	200 mm	43k wafers	10k-100k per month
	300 mm	18k wafers	10k-100k per month



Products & Markets

A roadmap to address markets across
Mobile, AI, Defense, and beyond

Scalable Technology for a Broad Market

From Consumer to Defense



Mobile and Consumer Electronics



- Face ID
- 3D scanner
- Health monitoring
- AR/VR

Datacom and AI Infrastructure



- AI/ML infrastructure
- Data centers and HPC
- Telecommunications
- 5G/6G wireless

Defense & Aerospace



- HD imaging
- LiDAR
- Communications
- Autonomous systems

Quantum



- Quantum photonics
- Networks and sensors
- Nonlinear optics
- Sources and detectors

Other markets: industrial, robotics, automotive

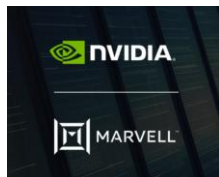
Why Aeluma and Why Now?

AI Infrastructure and Data Center Interconnects



Market Opportunity

- \$300+ billion in data center capex investments made by top four U.S. hyperscalers in 2025
- Investment will approach \$700 billion in 2026; growing to \$1+ trillion in 2029
- Optical networking comprises ~15% of this investment
- This is a significant opportunity for photonics



Overcoming the data transfer bottleneck

High-bandwidth, low-latency, and energy-efficient optical interconnects required for AI data centers

- Demand outpacing supply for pluggable optics components; investments being made in next-generation NPO, and CPO
- Emerging architectures:
 - Slow-and-wide based on microLEDs, microVCSELs, SiPh
 - Fast-and-narrow based on EMLs, SiPh, TFLN
- Industry facing major InP substrate supply shortage and limited InP fab capacity for lasers, EMLs, InGaAs photodiodes

Aeluma's non-InP photonics manufacturing can provide performance and scale for critical components including InGaAs photodiodes, quantum dot lasers, and high-speed modulators.

Portfolio

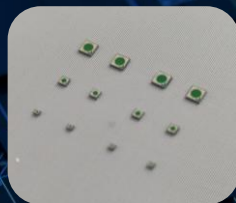
Scaling the World's Highest Performance Semiconductors



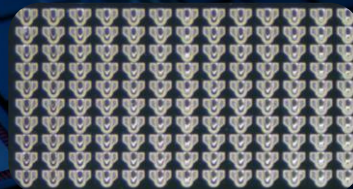
**Large Wafers and
Templates**



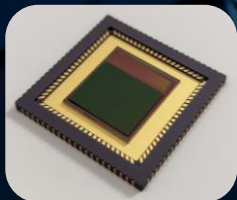
**Large-Area InGaAs
Photodiodes**



**High-Speed InGaAs
Photodiodes and Arrays**



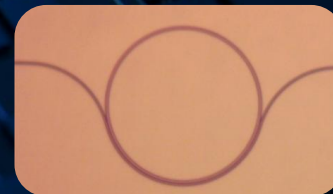
**InGaAs Imaging
Photodiode Arrays**



Quantum Dot Lasers



**Quantum Nonlinear
Photonics**



Wafers and Templates



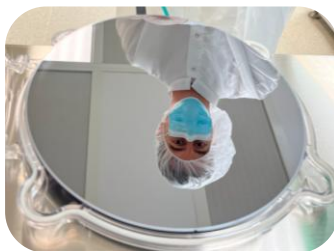
Features: Low defect density, surface roughness, and wafer bow

GaAs-on-Si



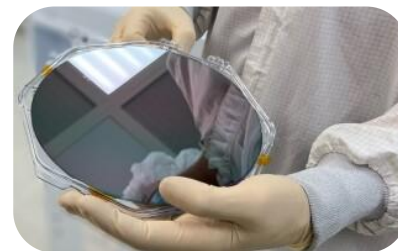
- 100 to 300 mm wafers
- Suitable for GaAs RF, Opto, MWIR

InP-on-(GaAs/Si)



- 100 to 300 mm wafers
- Suitable for InP RF, SWIR

AlGaAs-on-Insulator



- 100 to 300 mm wafers
- Suitable for InP RF, SWIR

Applications

- Defense & Aerospace
- RF Wireless

Applications

- Datacom and Telecom
- Mobile and Consumer

Applications

- Quantum Photonics
- Nonlinear Photonics

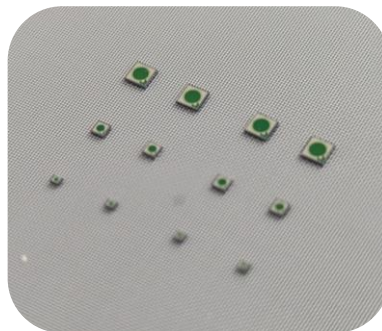
Large-Area InGaAs Photodiodes



Features

- **Typical Photosensitive Diameter (D):**
0.25 to 5.0 mm (0.25 and 0.5 mm most common)
- **Typical Operating Wavelength (λ):**
850 to 1550 nm
- **Device Type:**
PIN, UTC, APD or SPAD
- **Sample Format:**
Bare die, mounted on carrier or mounted in TO package

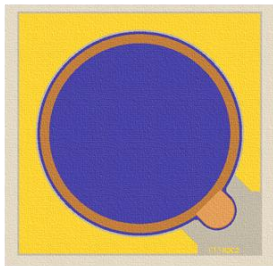
Bare Die



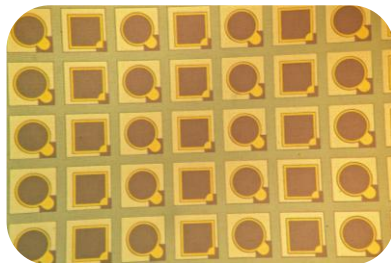
TO Package



Photodiode Schematic



Photodiodes



Applications

- Optical Communications
- Mobile and Consumer
- Industrial and Robotics
- Defense & Aerospace
- Automotive

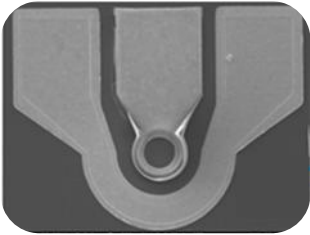
High-Speed InGaAs Photodiodes



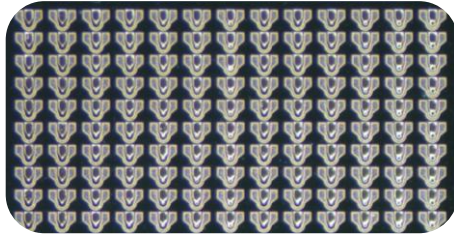
Features

- **Typical Data Rates:**
1 to 100G
- **Typical Operating Wavelength (λ):**
850 to 1550 nm
- **Device Type:**
PIN, UTC, APD
- **Sample Format:**
Bare die, mounted on carrier, array format, wafer-scale integrated
- **Target Architecture:**
MMF, SMF

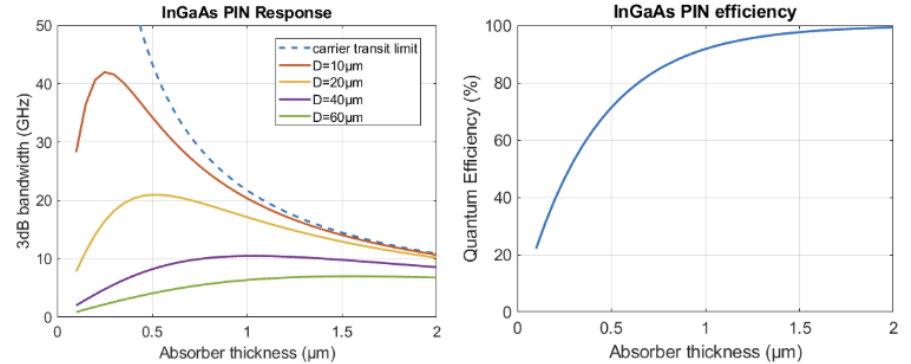
Single-Element



Array



Bandwidth-Efficiency Design Engineering



Applications

- Datacom and Telecom
- Defense & Aerospace
- Instrumentation

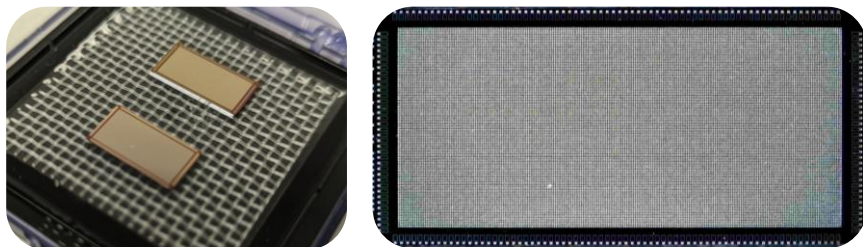
SWIR InGaAs Photodiode Arrays



Features

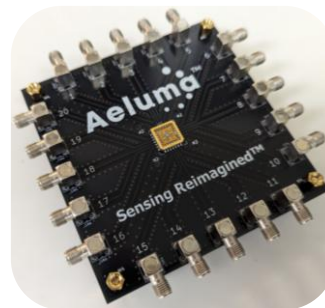
- Low dark current photodiodes arrays manufactured with large-diameter substrate platform
- Pixel and array size customizable
- Typical array sizes: 128X32, 256X128, 640X512
- Delivered as PDA chips or with ROICs
- FPA assembly available
- Small test arrays (ex. 8 X 8) available for evaluation

Photodiode Arrays

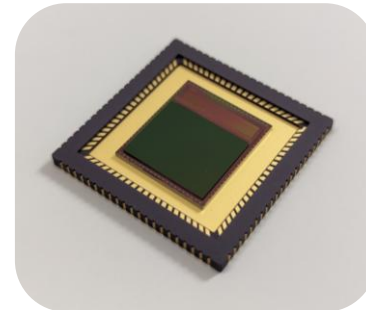


Examples shown are 256X128 format

Evaluation Board



Focal Plane Array Assembly



Applications

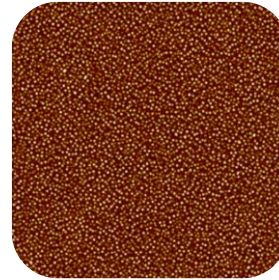
- Mobile and Consumer
- Defense & Aerospace
- AR/VR
- Industrial and Robotics
- Automotive

Quantum Dot Lasers

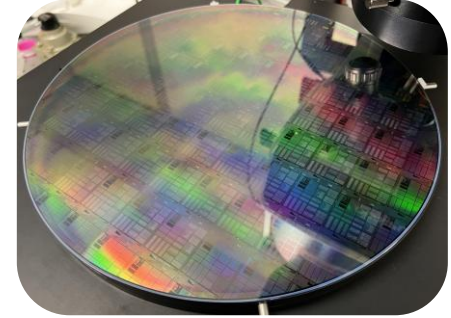
Features

- **Typical Operating Wavelength (λ):**
O-band (1260 to 1360 nm)
- **Device Format:**
Fabry-Perot laser, SOA, RSOA, *DFB laser*
- **Sample Format:**
Bare die, mounted on carrier, integrated with SiPh
- **Target Architecture:**
SMF, WDM, CPO

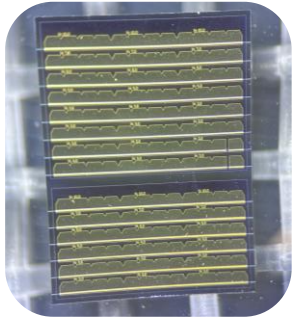
MOCVD Quantum Dots



SiPh Integration



Fabricated Quantum Dot Lasers



Applications

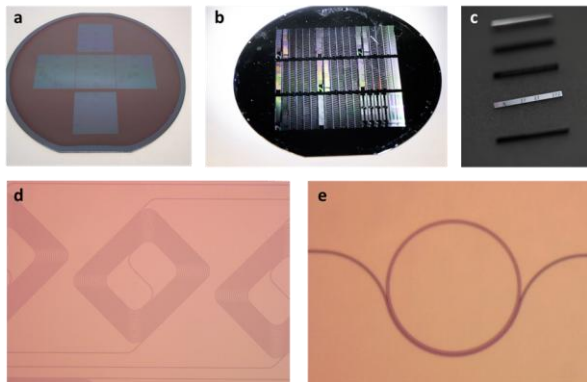
- Datacom and Telecom
- Consumer Sensing
- Defense & Aerospace
- Quantum

Quantum Photonics

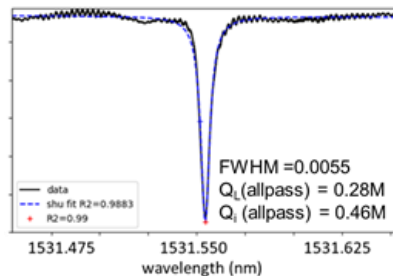
Features

- AlGaAs-on-Insulator wafers (100 to 300 mm)
- Strongly nonlinear optical material
- Low optical loss (<1.5 dB/cm)
- Integration with

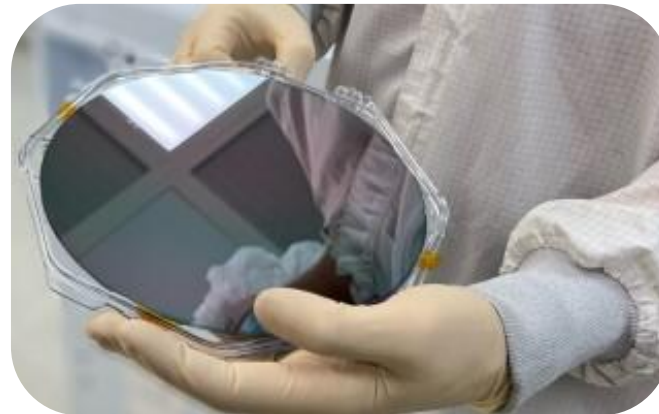
Fabricated Waveguides and Ring Resonators



Resonator Performance



200/300 mm Capable Platform



Applications

- Quantum Photonics
- Entangled Photon Pair Generation
- Nonlinear Optics



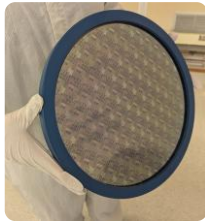
Facilities & Capabilities

Capital-light, large-volume manufacturing

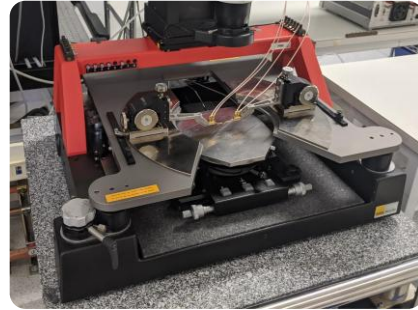
Aeluma's Cost-Effective and Scalable Manufacturing

Transitioning to Commercialization

12-inch wafer capability



Rapid prototyping and small-volume manufacturing



Partners for medium- and large-volume manufacturing



Combining rapid prototyping capabilities and volume manufacturing partners, Aeluma is positioned to effectively transition from R&D to commercialization with a capital-light approach.

Aeluma's Headquarters

Ideal Ecosystem for Development and Commercialization



Aeluma's Headquarters: Capabilities

Ideal Ecosystem for Development and Commercialization



Headquarters with R&D and manufacturing capabilities [9,000 sq. ft.]



Executive office and meeting space [2,400 sq. ft.]



300mm MOCVD capability



300mm Test and Validation





AelumaTM

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