Investor Presentation

March 2025

OTCQB

ALMU

Forward Looking Statements

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Aeluma at a Glance

Aeluma develops high-performance semiconductors that scale for consumer markets.

Headquarters: Santa Barbara, California

Team: 15

OTCQB
ALMU

Share Price[1]	$7.65
Market Cap.[1]	$93.18M
Shares Outstanding[1]	12.24M

[1]At December 31, 2024

$3.6B SAM in 2030

SAM growing from $550M in 2025

Broad Applicability

Traction and market potential in: Mobile, AR/VR, AI, Automotive, Defense & Aerospace, Quantum Computing, Communication, Biomedical and 5G/6G

29

Issued and pending patents

ISO 9001:2015

Quality Management System Certification

SAM estimates based on internal assumptions and market reports.

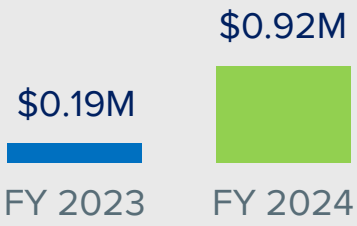
Financial Highlights

Revenue Momentum

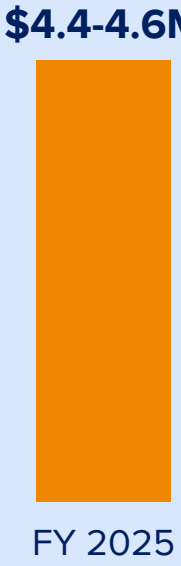
Revenue

First revenue reported only ~2 years following initial private placement

FY 2023 to FY 2024
Revenue grew by $0.73M



Record backlog from commercial and government contracts driving **revenue growth**



Second Quarter of Fiscal 2025 Earnings:
Over **$1.6M** revenue
Year-over-year growth over **500%**

Guidance:
FY 2025 revenue guidance: **$4.4-4.6M**
Year-over-year growth over **375%**

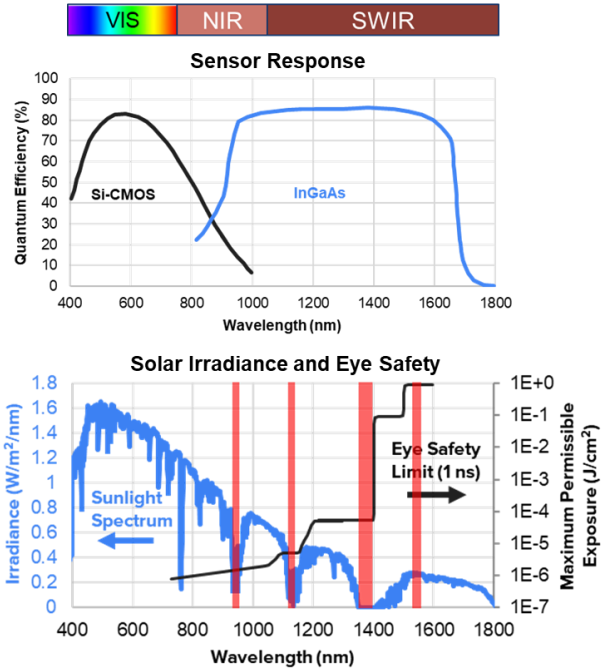
Forecast is based on internal projections. Note: Outcomes cannot be guaranteed.

Why Aeluma and Why Now?

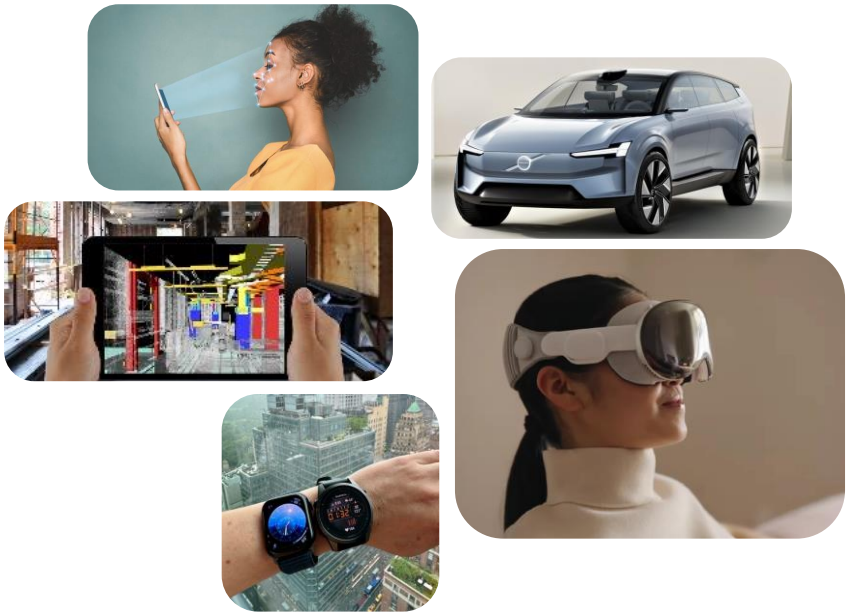
Better Performance Preferred for Mass Markets

Market Vertical Example: Shortwave Infrared (SWIR) Sensors for Mobile and Consumer

What is SWIR?



SWIR sensors needed for eye safety and other benefits



Radical approach required to scale and reduce cost

VIS: visible; NIR: near infrared; SWIR: shortwave infrared; InGaAs: indium gallium arsenide; Si: silicon; Source of plots: Rep. Prog. Phys. 85, 12 (2022).

Aiming to Service a Broad Market

High-Performance Semiconductors That Scale

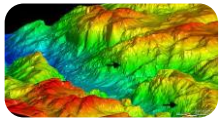
Mobile, Tablet and AR/VR

- Mobile phone, tablet
- Face ID
- LiDAR scanner
- Proximity sensors
- AR/VR glasses

AI, Communications and Quantum Computing

- Data centers and AI
- High performance computing (HPC)
- Telecommunications
- Quantum computing
- 5G/6G wireless

Defense & Aerospace



- Imaging and LiDAR
- Security
- Autonomous systems
- Atmospheric sensing
- Topography

Automotive

- Consumer vehicles
- Robotaxis
- Trucking
- Advanced driver assistance systems

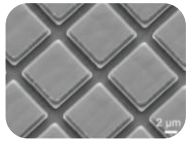
Industrial and Logistics

- Robotics
- Delivery robots
- Factory automation
- Logistics
- Security

Aeluma is positioned as a semiconductor technology provider to service a broad range of market verticals.

Timeline and Milestones

Reporting Revenue and Record Backlog



Seed funding

$8M raise and reverse merger

First 12-in wafer

Prototype samples delivered to customer

Custom samples delivered to Tier-1 supplier

Navy Contract

CHIPS Act DOD Hub

SPIE Photonics West Exhibition

DOE Contract

CS Mantech Conference

ISO 9001 Certification

$11.7M DARPA Contract

Optica Member

SPIE Photonics West Exhibition

2021

2022

2023

2024

2025

Facility

Qualify equipment

Listed OTCQB:ALMU

Supply Agreement for Silicon Photonics

$6M raise

First revenue reported

Second Navy Contract

OSD Contract

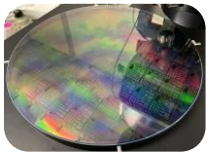
SPIE DCS Conference

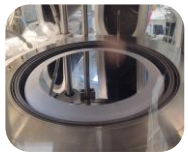
Earnings and Revenue Guidance

Second OSD Contract

NASA Contract

AIM Photonics Member





Aeluma has met or beat all of its milestones.

Past performance is not indicative of future performance. Outcomes cannot be guaranteed.

Milestones Highlight

Aeluma Magazine Coverage

Aeluma's Breakthroughs Featured in Compound Semiconductor Magazine

Article Highlights Aeluma's Shortwave Infrared Sensor Products for Consumer Markets

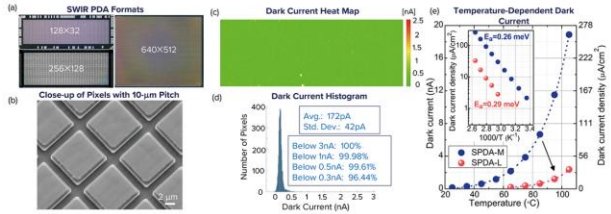
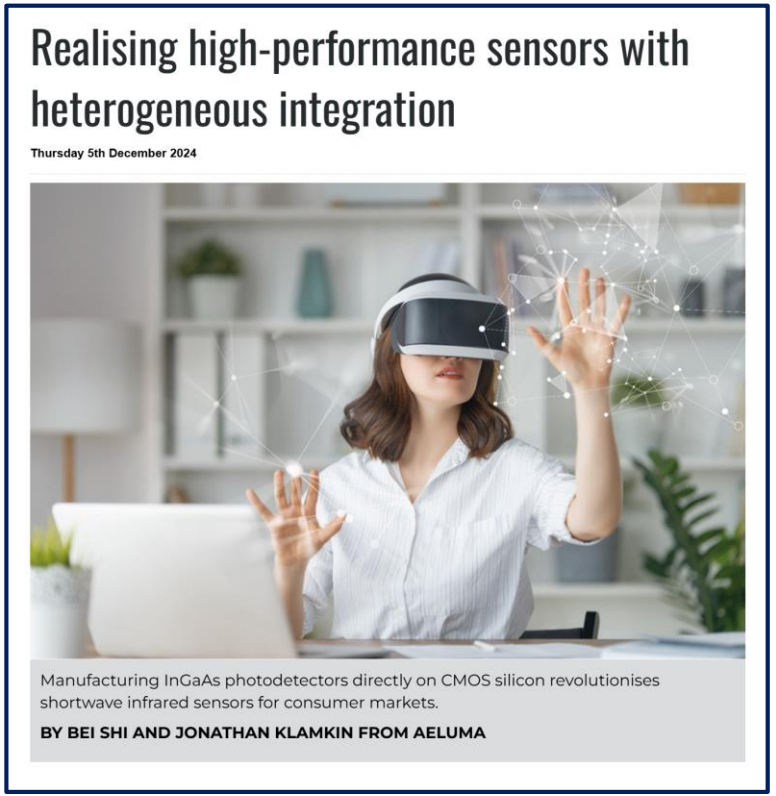


Figure 4. (a) Photographs of photodetector arrays with various array formats, including 128×32, 256×128, and 640×512. Pixel pitches that range from 10 µm to 90 µm. (b) Close-up scanning electron microscopy image of fabricated pixels with a pitch of 10 µm. (c) Exemplary dark current heat map of the 128×32 photodetector arrays. (d) Extrapolated histogram for yield analysis. (e) Dark current of a single detector pixel as a dependence of the stage temperature, to derive the dark current doubling temperature. Inset shows the extrapolation of the activation energy for two photodetector array structures. The operating bias is -5 V for all data provided in this figure.



Realising high-performance sensors with heterogeneous integration

Thursday 5th December 2024

Manufacturing InGaAs photodetectors directly on CMOS silicon revolutionises shortwave infrared sensors for consumer markets.

BY BEI SHI AND JONATHAN KLAMKIN FROM AELUMA

The Aeluma Approach to Semiconductor Manufacturing

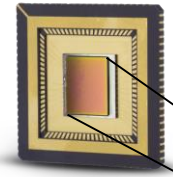
High-Performance Technology with Large-Diameter Substrate Manufacturing

Aeluma™

Aeluma™

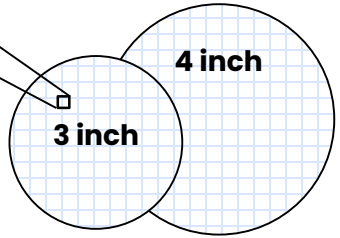
Leaping from InP to silicon

SWIR Sensor

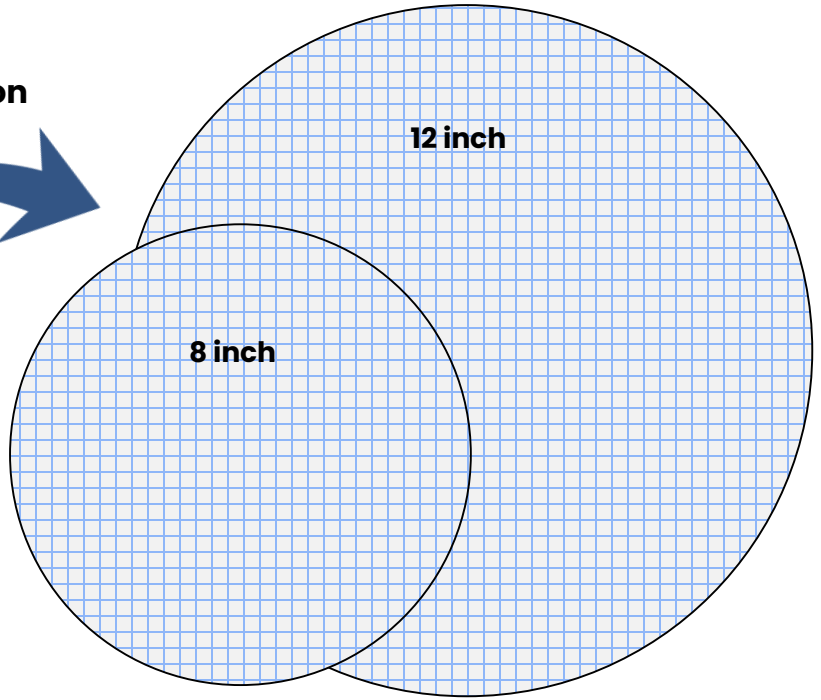


InGaAs manufactured on InP substrate

InP substrate sizes



Silicon substrate sizes



InP: indium phosphide; Source of image: https://www.flir.com/support/products/swir-ingaas-fpa/

Aeluma's Technology Breakthrough

Scalable, Cost-Effective Manufacturing Enabled by Cutting-Edge Intellectual Property

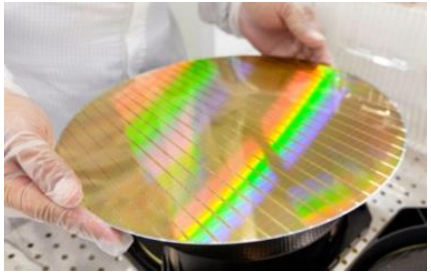
Conventional manufacturing of InGaAs semiconductor devices

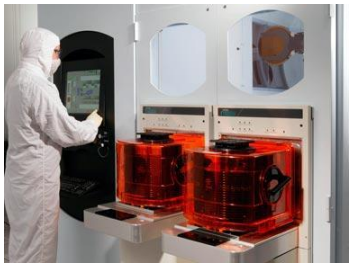
Not scalable, manual and low throughput

Moving from 3-inch to 12-inch wafers

16X wafer area

Aeluma high-performance InGaAs with silicon manufacturing





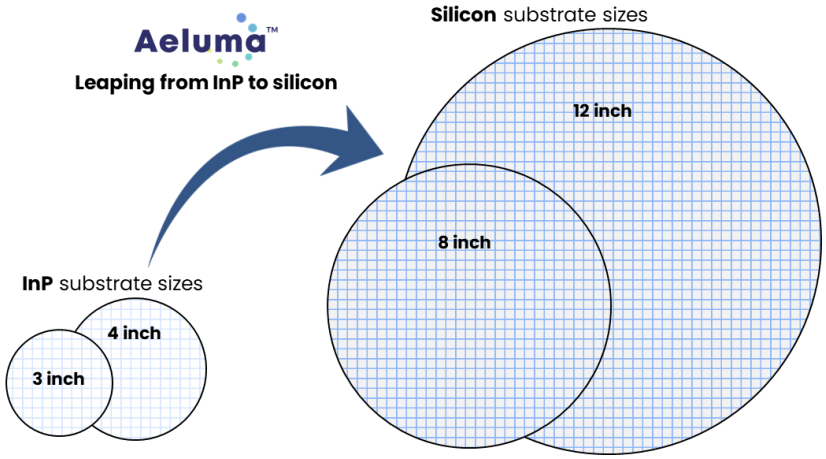
- ✓ Highly automated and ability to produce many chips per wafer
- ✓ Monolithic CMOS process integration
- ✓ Wafer-scale integration and packaging
- ✓ 10X lower manufacturing cost for mass market applications

CMOS: complementary metal-oxide semiconductor; Note: Outcomes cannot be guaranteed.

Manufacturing for a Mass Market

Aeluma's Large-Diameter Manufacturing Economies of Scale

Aeluma's Large-Diameter Wafer Platform



Manufacturing Capacity Bottleneck:
Producing 20 million sensor chips for consumer market

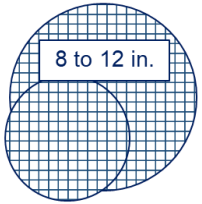
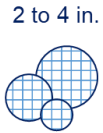
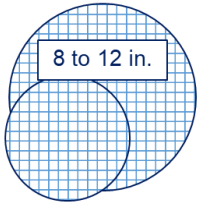
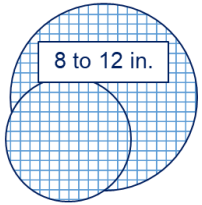
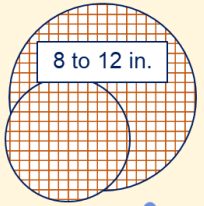
	Substrate size	Wafers required for 20m sensor chips	Typical fab capacity
Incumbent Technology	3-inch	425k wafers	1-10k wafers per month
	4-inch	213k wafers	1-10k wafers per month
Aeluma™ Large-diameter platform	**8-inch**	**43k wafers**	**10-100k per month**
	12-inch	**18k wafers**	**10-100k per month**

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

Outcomes cannot be guaranteed. Values are provided for qualitative illustration purposes only.

Aeluma Outperforms the Competition

Technology Comparison

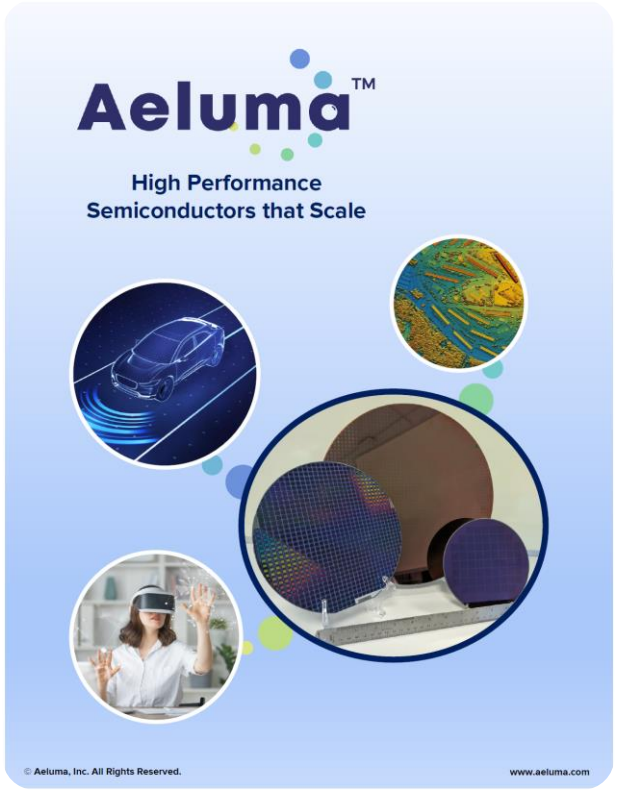
	Incumbent technologies		Technologies for scaling and cost reduction		
Technology:	Si SPAD	InGaAs-on-InP	Ge-on-Si	CQD	**InGaAs-on-Si**
Substrate size:					
Suppliers:	SONY, ST	HAMAMATSU, EXCELITAS TECHNOLOGIES	ARTILUX, TRIEYE	onsemi SWIR VISION SYSTEMS, ST	Aeluma
Eye Safe:	No	Yes	Somewhat	Somewhat	**Yes**
Performance:	Good	Best	Fair	Fair	**Best**
Multiplication (APD, SPAD):	Yes	Yes	Possible	No	**Yes**
Wafer-scale integration:	Yes	No	Yes	Yes	**Yes**
Status:	Mature Scalable	Mature Not Scalable	Maturing Scalable	Maturing Scalable	**Maturing** **Scalable**

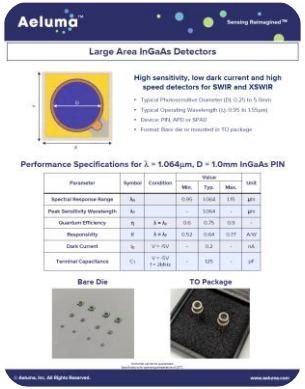
Aeluma's is the only known technology that combines proven, high-performance InGaAs with scalable, cost-effective silicon manufacturing, thereby overcoming the cost-performance tradeoff.

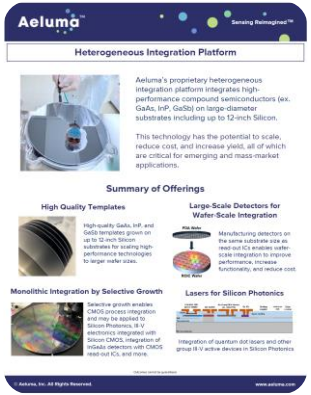
Note: Outcomes cannot be guaranteed. Metrics provided for qualitative illustration purposes only. Typical InP substrate sizes are 3- or 4-inch. Typical Si substrate sizes are 8- or 12-inch. APD: Avalanche photodiode. SPAD: Single-photon avalanche diode.

Technology Portfolio

- Detector Arrays
- Large-area Detectors
- Quantum Dot Lasers
- Quantum Photonics
- Nano-scale Semiconductors







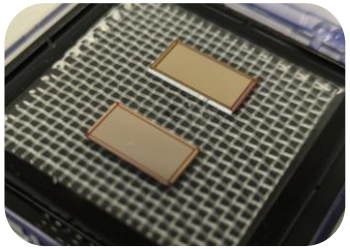
Custom Detector Arrays

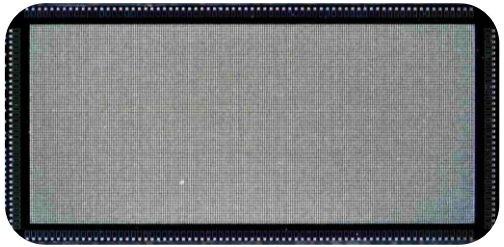
SWIR Detector Arrays for Active and Passive Imaging

Product Offering Features

- Low dark current photodetector 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/qualification

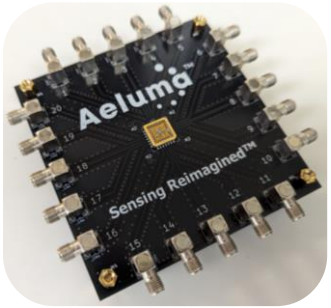
Photodetector Array Chips



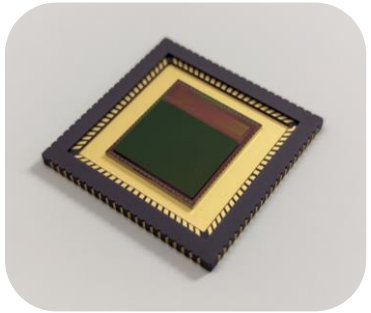


Examples shown are 256X128 format

Evaluation Board



Focal Plane Array Assembly



Applicable markets include:

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

PDA: photodetector array; ROIC: read-out integrated circuit; FPA: focal plane array

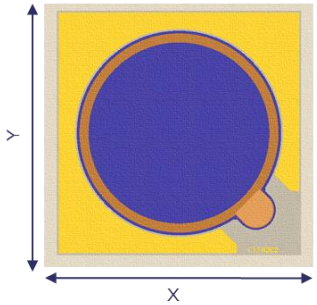
Large-Area Detectors

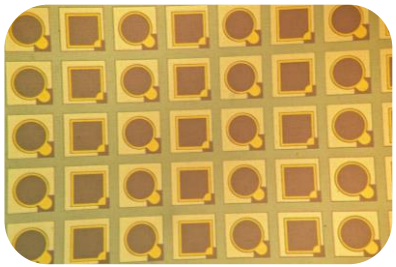
High sensitivity, low dark current and high speed detectors for SWIR and XSWIR

Product Offering Features

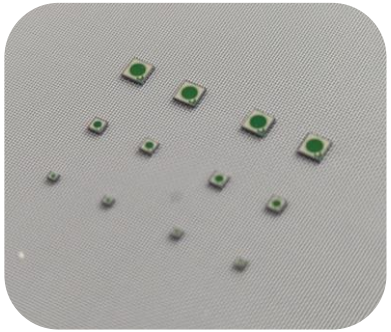
- **Typical Photosensitive Diameter (D):**
  0.25 to 5.0mm
- **Typical Operating Wavelength (λ):**
  0.95 to 1.55µm
- **Device:**
  PIN, APD or SPAD
- **Format:**
  Bare die or mounted in TO package

Photodetector Schematic





Bare Die



TO Package

Applicable markets include:

- Automotive
- Mobile
- AR/VR
- Defense & Aerospace
- Industrial and Logistics
- Gas sensing and Energy
- Instrumentation
- Security

XSWIR: extended SWIR; TO: transistor outline

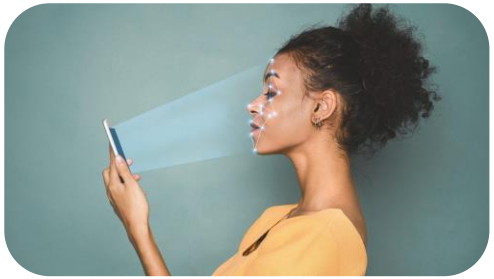

Opportunities for Growth

Sensors in Mobile Phones and Consumer Electronics

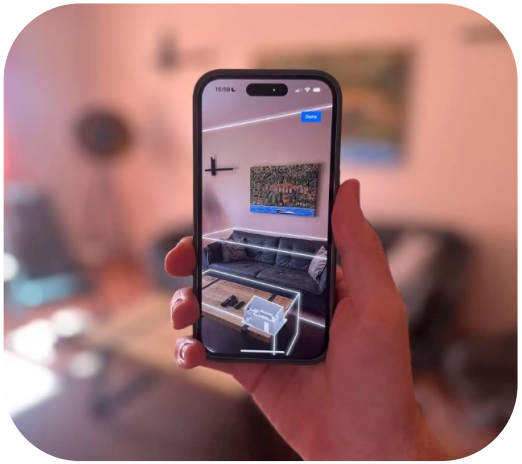
Mobile and Consumer Markets: **$296B** in semiconductor revenue in 2023[1]

Aeluma™

Facial ID



Lidar Scanner



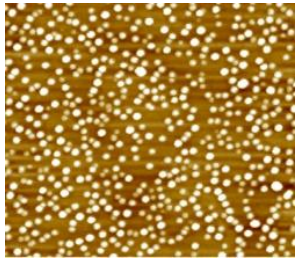
Proximity Sensor

[1]https://www.yolegroup.com/product/report/semiconductor-trends-in-mobile-and-consumer-2024/ Lidar: light detection and ranging

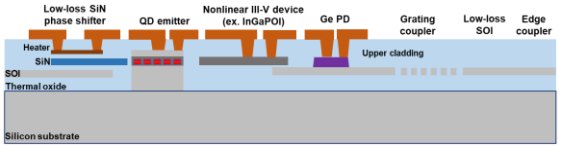
Quantum Dot Lasers for Silicon Photonics

Optical Interconnects for AI, DCI and HPC
AI Market: **$826B** in 2030[1]
Silicon photonics market: **$8B** in 2030[2]

Quantum Dot Lasers

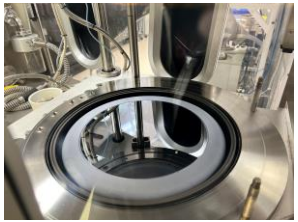


Lasers for Silicon Photonics

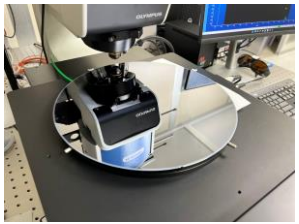


Integration of quantum dot lasers and other group III-V active devices in silicon photonics

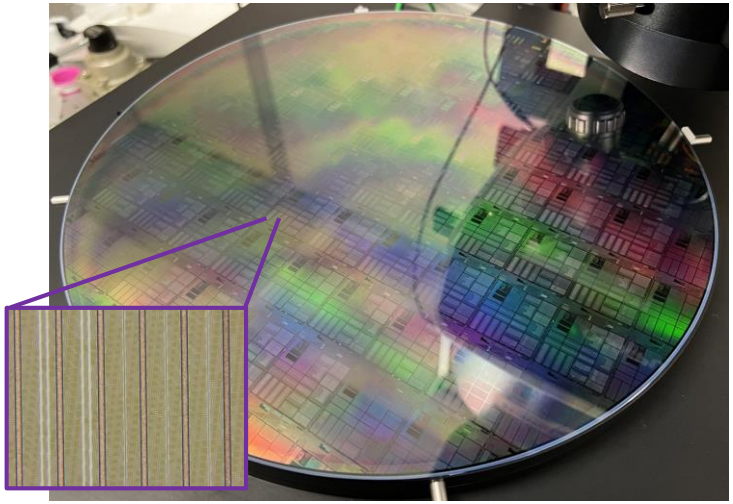
12-inch Wafer in Growth Chamber



12-inch Wafer Under Test



12-inch Silicon Photonics Wafer with Aeluma Materials



Aeluma™ AIM PHOTONICS

[Aeluma, Inc. Enters into Agreement with RFSUNY to Support AIM Photonics]

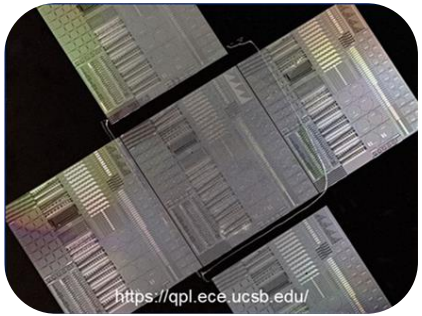
DCI: data center interconnects; HPC: high performance computing; [1]www.statista.com; [2]www.grandviewresearch.com

Quantum Computing with Photonics

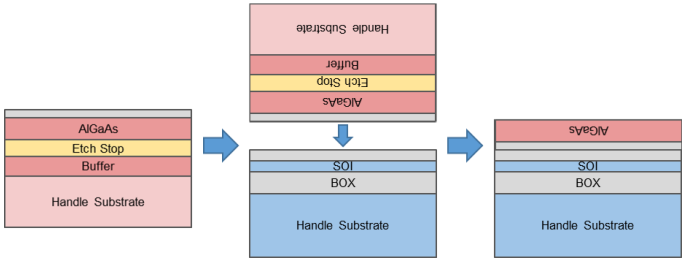
Nonlinear Optical Materials with Heterogeneous Integration

Quantum computing market: **$20B** in 2030[1]

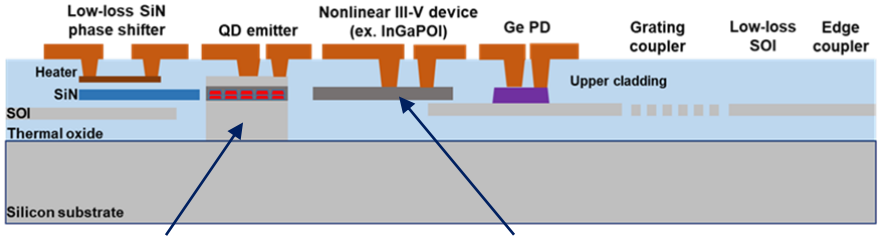
Quantum Photonic Circuits



Adding III-Vs to SOI silicon photonics platform



Nonlinear III-V devices in 300mm SOI silicon photonics



Integrated gain with selective growth of InAs quantum dots

Integrated source with nonlinear InGaP or AlGaAs

AlGaAs-on-Insulator following hybrid wafer bonding and substrate removal

[1]www.investing.com

Future Advanced-Node Semiconductors

Heterogeneous Integration of III-V Materials on Silicon CMOS

Semiconductor market: **$1T** in 2030[1]

Aeluma Wins $11.717 Million DARPA Contract for Nano-Scale Semiconductors

SEPTEMBER 18, 2024 4:01PM EDT

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Award to Develop Heterogeneous Integration Technology Compatible with Leading Edge and Future Advanced-Node Semiconductors

Technology Applications Include AI, Mobile Devices and 5G/6G

Aeluma Partnering with Teledyne Scientific Company and University of California Santa Barbara

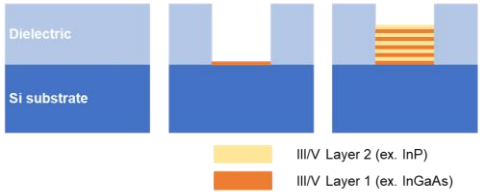
GOLETA, CA / ACCESSWIRE / September 18, 2024 / Aeluma, Inc. (OTCQB:ALMU), a semiconductor company specializing in high performance, scalable technologies for mobile, automotive, AI, defense & aerospace, communication and quantum computing, announced today that it has been awarded funding from the Defense Advanced Research Projects Agency (DARPA) to develop heterogeneous integration technology compatible with leading edge and future advanced-node semiconductors with potential applications in AI, mobile devices and 5G/6G wireless communication.

Aeluma, Inc.

UCSB — UC Santa Barbara

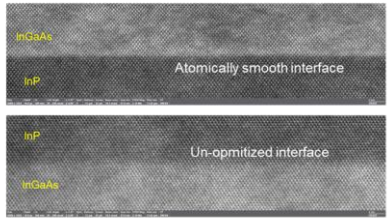
TELEDYNE — Teledyne Scientific Company

NEOFILMS Selective Area Heteroepitaxy Concept



SAH provides aspect ratio trapping and thermal stress relief while enabling CMOS process integration.

Atomic Layer Epitaxy for Composition Sharpness



MOCVD-enabled ALE allows for atomic-level control of film thickness and interface sharpness.

[1]www.digitimes.com

CHIPS Act Microelectronics Commons

Aeluma Hub Leader USC Named Recipient of CHIPS Act Program Award

RELEASE

IMMEDIATE RELEASE

Deputy Secretary of Defense Kathleen Hicks Announces $238M CHIPS and Science Act Award

Sept. 20, 2023 |

Deputy Secretary of Defense Kathleen Hicks announced the award today of $238 million in "Creating Helpful Incentives to Produce Semiconductors (CHIPS) and Science Act" funding for the establishment of eight Microelectronics Commons (Commons) regional innovation hubs.

This is the largest award to date under President Biden's CHIPS and Science Act.

"The Microelectronics Commons is focused on bridging and accelerating the lab-to-fab transition, that infamous valley of death between R&D and production," said Deputy Secretary Hicks. "President Biden's CHIPS Act will supercharge America's ability to prototype, manufacture, and produce microelectronics scale. CHIPS and Science made clear to America — and the world — that the U.S. government is committed to ensuring that our industrial and scientific powerhouses can deliver what we need to secure our future in this era of strategic competition."

Source: https://www.defense.gov

- Deputy Secretary of Defense announced $238 million in CHIPS funding for the establishment of Microelectronics Commons regional hubs
- According to the announcement, only 8 of 83 submitted proposals were selected for a funding award
- Aeluma hub leader University of Southern California led winning proposal
- Aeluma proud to have contributed to winning proposal and participate as affiliate member of the hub


The Path to Commercialization

Aeluma's Headquarters

Ideal Location for Development and Commercialization

- Located in Goleta/Santa Barbara, California
- 9,000 sq. ft. space with cleanroom facility
- ISO 9001:2015 Certified

Aeluma's Cost-Effective Scalable Manufacturing

12-inch Wafer Capability and Strong Intellectual Property

- Commercial 12-inch state-of-the-art deposition tool
- Set up for cassette loading production
- Support equipment for wafer clean and processing
- Extensive patent protection and trade secrets
- **Large-volume foundry partners for scaling**

Leadership Team

Vision, Entrepreneurship and Expertise

Aeluma™

Senior Management

Jonathan Klamkin, PhD
Founder, CEO & Director

BINOPTICS · UCSB · MIT LINCOLN LABORATORY

Matthew Dummer, PhD
Director of Technology

Vixar · ams OSRAM

Investors/Advisors

Shuji Nakamura, PhD
Seed Investor

UCSB · SLDLASER · SORAA

Richard Ogawa, JD
Advisor & Seed Investor

Inphi · amesite · AKOUSTIS

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