Forward Looking Statements

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At a Glance

Aeluma develops high performance semiconductors that scale for consumer markets.

Headquarters: Santa Barbara, California

Team: 15

OTCQB
ALMU

Share Price[1]	**$3.58**
Market Cap.[1]	**$43.69M**
Shares Outstanding[1]	**12.18M**

[1]At June 30, 2024

$1.5B SAM in 2030
InGaAs sensors

SAM growing from $240M in 2025

Broad Applicability

Expanding marketing in Mobile, AI, Quantum Computing, AR/VR, Communication, Biomedical, 5G/6G

26+

Issued and pending patents

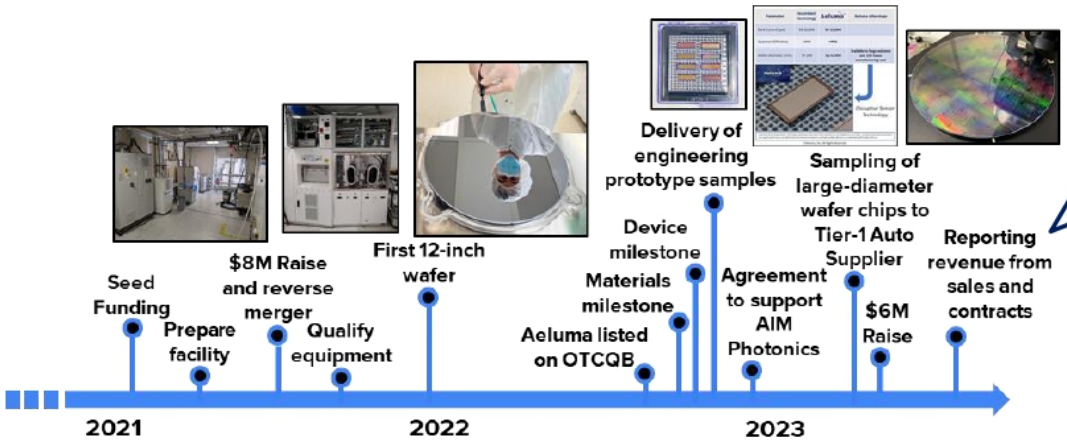
ISO 9001:2015

Quality Management System Certification

SAM based on InGaAs (indium gallium arsenide) sensors in selected defense & aerospace, mobile/consumer, automotive, other; Estimates based on internal assumptions and reports including from www.futuremarketinsights.com.

Timeline and Milestones

Aeluma Reporting Revenue from Multiple Customers



Revenue Reported

Achieving revenue after ~2 years from our initial private placement financing

- Aeluma began to recognize revenue from its products in fourth fiscal quarter ended June 30, 2023 (see 10-K filed on September 25, 2023) and has reported revenue every quarter since
- Revenue generated primarily from small-volume orders and development contracts

Aeluma has met or beat all of its milestones

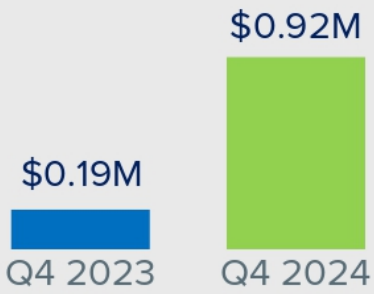
Past performance is not indicative of future performance. Outcomes cannot be guaranteed.

Fiscal Q4 2024

Financial Highlights

Revenue

Revenue grew by
$0.73M



Guidance for more than
335% Year-Over-Year
Revenue Growth in Fiscal Year 2025

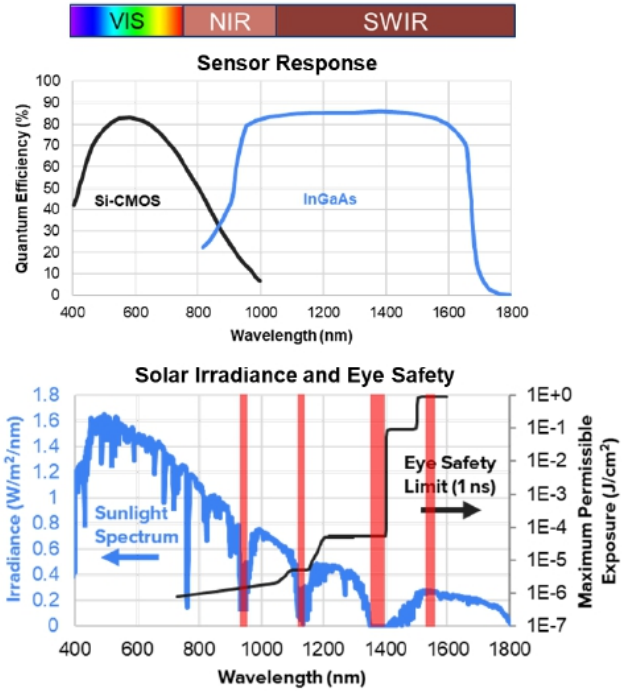
Record backlog from multiple government and commercial contracts driving revenue growth

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

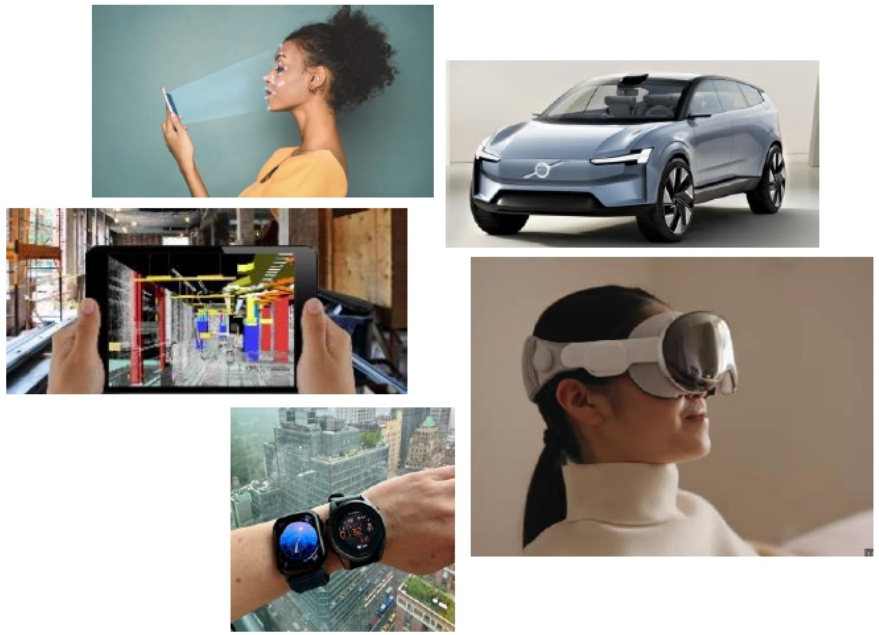
Why Aeluma and Why Now?

Shortwave Infrared (SWIR) Sensors Needed for Consumer Markets

What is SWIR?



SWIR sensors needed for eye safety and other benefits

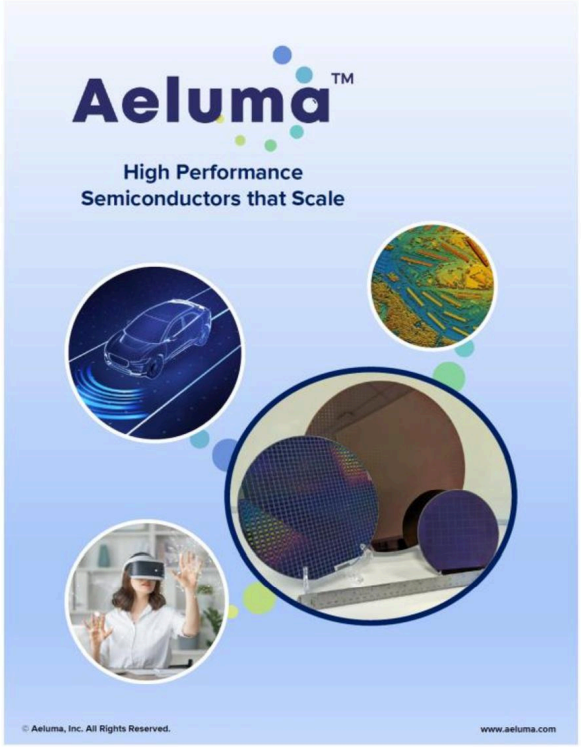


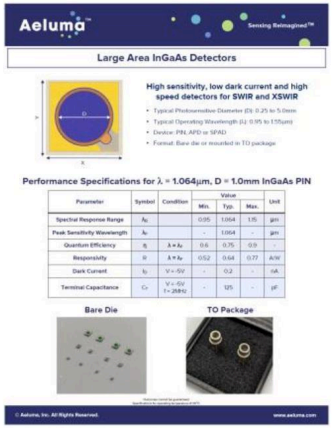
Radical approach required to scale and reduce cost

VIS: Visible; NIR: Near infrared; SWIR: Shortwave Infrared; Source of figures: Rep. Prog. Phys. 85, 12 (2022).

Technology Portfolio

- Detector Arrays
- Large-area Detectors
- Quantum Dot Lasers
- Heterogeneous Templates





Aiming to Service a Broad Market

High Performance Semiconductors That Scale

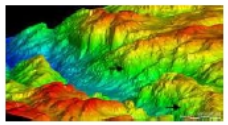
Mobile and AR/VR

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

Communications, Quantum and AI

- Data centers and AI
- Telecommunications
- Quantum computing
- 5G/6G wireless

Defense & Aerospace



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

Automotive LiDAR

- Consumer vehicles
- Robotaxis
- Trucking

Industrial and Logistics

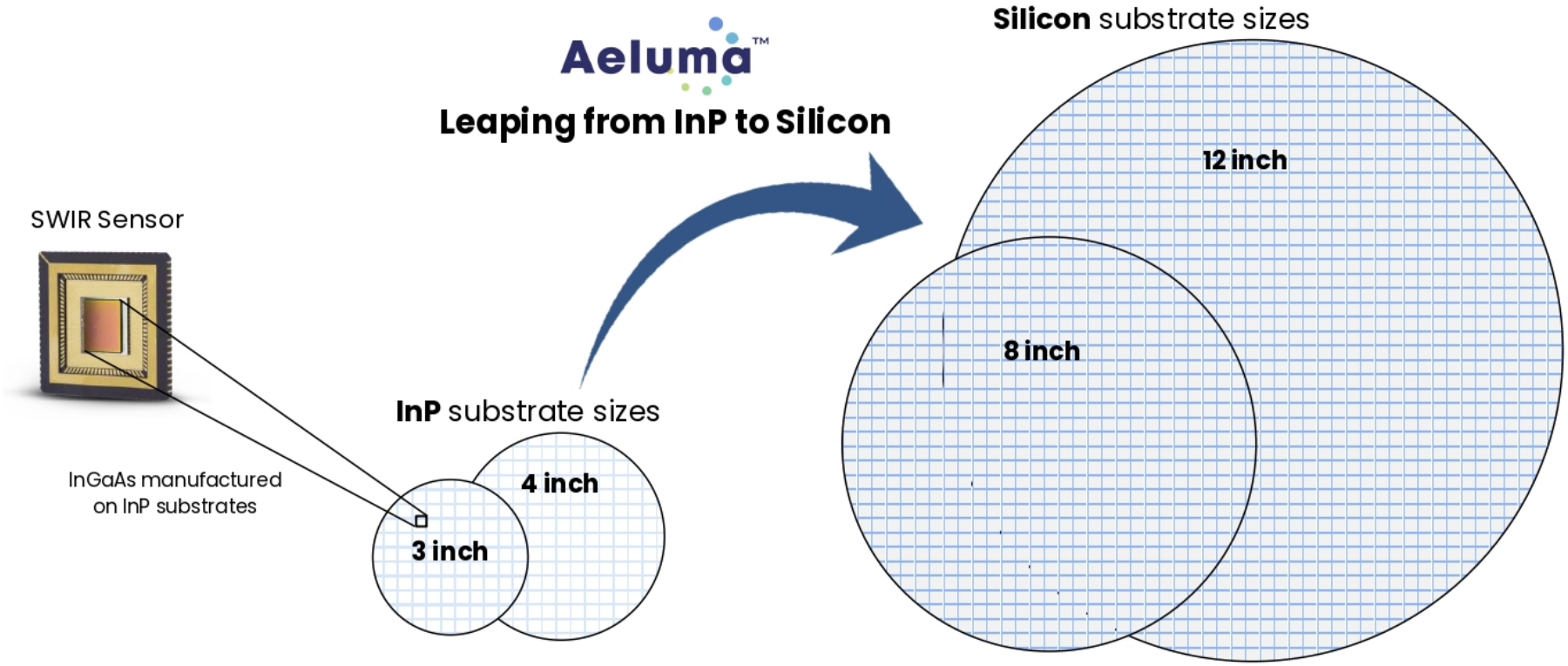
- Robotics
- Delivery robots
- Factory automation
- Logistics
- Security

Aeluma positioned as a technology provider to service broad range of merket verticals

Market sizes based on internal studies and projections for 2030.

The Aeluma Approach to Semiconductor Manufacturing

High Performance Technology with Large-Diameter Substrate Manufacturing



InGaAs: Indium Gallium Arsenide; InP: Indium Phosphide;
Source of image: https://www.flir.com/support/products/swir-ingaas-fpa/; Note: Outcomes cannot be guaranteed.

Aeluma's Technology Breakthrough

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

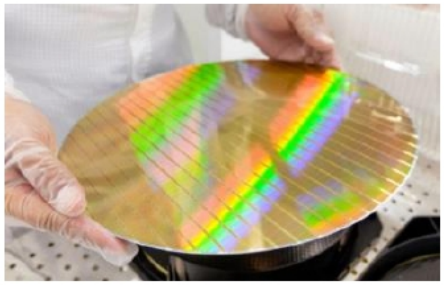
Conventional manufacturing of InGaAs semiconductor devices

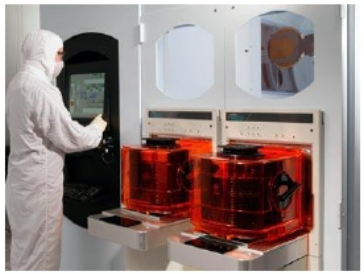
Non-scalable, manual and low throughput

Moving from 3-inch to 12-inch wafers

16X wafer area

Aeluma high performance InGaAs with Silicon manufacturing





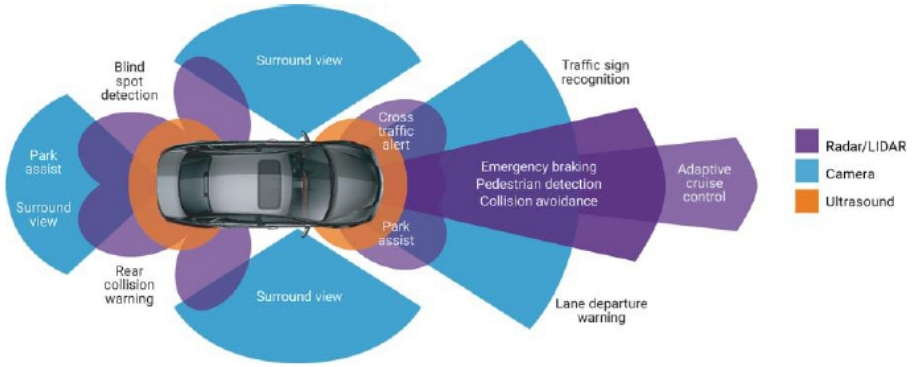
- ✓ Highly automated and ability to produce many devices per wafer
- ✓ Monolithic CMOS process integration
- ✓ Wafer-scale integration and packaging
- ✓ 10X lower manufacturing cost for mass market applications

Note: Outcomes cannot be guaranteed.

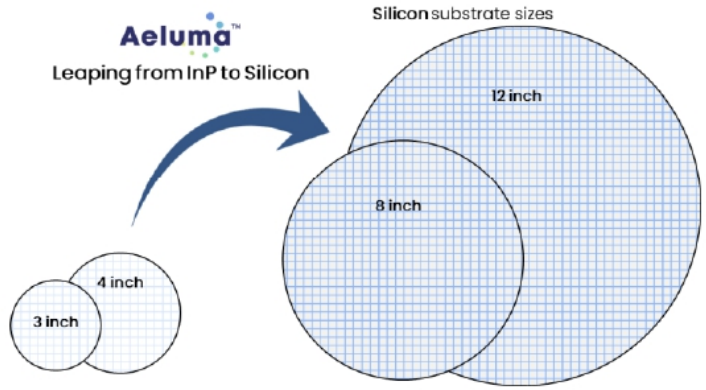
Manufacturing for a Mass Market

Aeluma's Large-Diameter Manufacturing Economies of Scale

Cars will have Radar, LiDAR, and Camera sensors



- **Market: 113 million automotive vehicles in 2024[1]**
- **Each vehicle may have 1-5 LiDAR sensors**
- **Note: Some LiDARs require more than 1 FPA**



Example case: Manufacturing 20,000,000 sensor chips for LiDAR

Number of wafers required
3-inch: 425,532 wafers
4-inch: 212,768 wafers

3-inch: 47 chips per wafer
4-inch: 94 chips per wafer

Number of wafers required
8-inch: 42,824 wafers
12-inch: 17,700 wafers

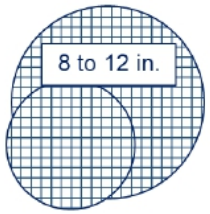
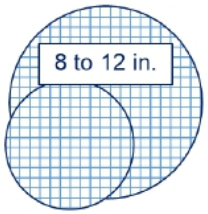
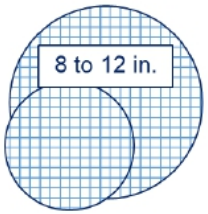
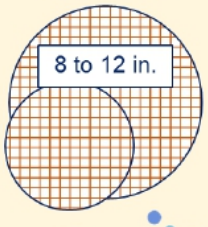
8-inch: 467 chips per wafer
12-inch: 1,130 chips per wafer

Aeluma's manufacturing approach can enable the scaling and cost reduction required for mass market applications.

LiDAR: Light Detection and Ranging; Note: Outcomes cannot be guaranteed. Values are provided for qualitative illustration purposes only. [1]www.idc.com.
Source of car/sensors figure: https://www.eetimes.com/why-sensor-technology-is-the-key-to-autonomous-vehicles/

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.

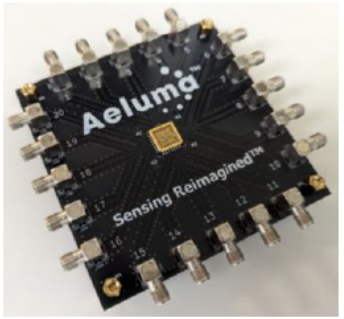
Note: Outcomes cannot be guaranteed. Metrics not based on actual data and are provided for qualitative illustration purposes only. Typical InP substrate sizes are 3- or 4-inch. Typical Si substrate sizes are 8- or 12-inch. APD: Avalanche photodiode. SPAD: Single-photon avalanche diode.

Custom Detector Arrays

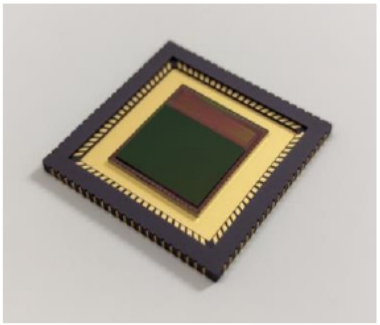
SWIR Detector Arrays for Active and Passive Imaging

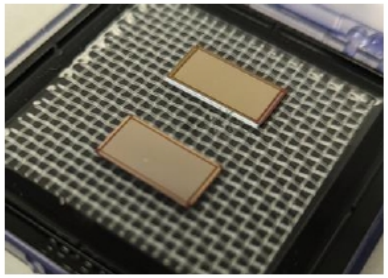
- Low dark current photodetector arrays manufactured with large-diameter substrate platform
- Pixel and array size customizable
- Typical array sizes: 128 X 32, 256 X 128, 640 X 512
- Delivered as PDA chips or with ROICs
- FPA assembly available
- Small test arrays (ex. 8 X 8) available for evaluation/qualification

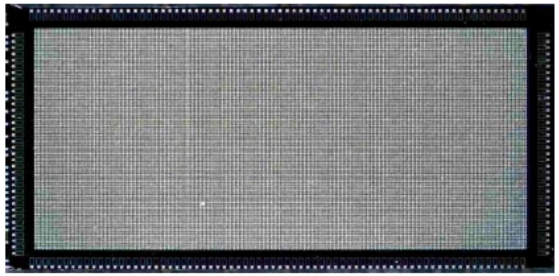
Evaluation Board



Focal Plane Array Assembly







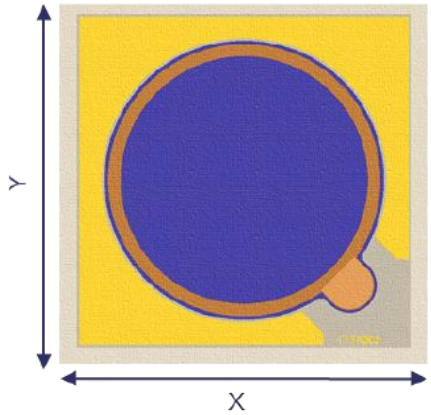
Examples shown are 256 X 128 arrays

Applicable markets include: automotive, mobile, AR/VR, defense & aerospace, industrial and logistics, and security

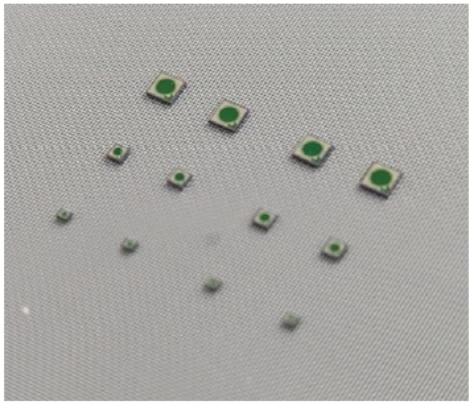
Large-Area Detectors

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

- 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



Bare Die



TO Package

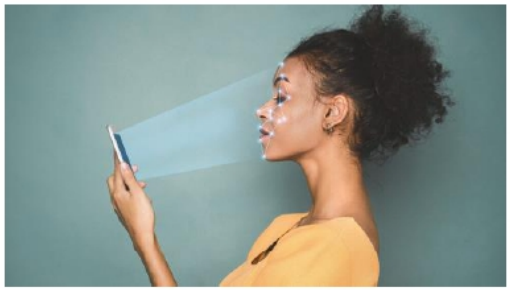
Applicable markets include: automotive, mobile, AR/VR, defense & aerospace, industrial and logistics, gas sensing, instrumentation, and security


Opportunities for Growth

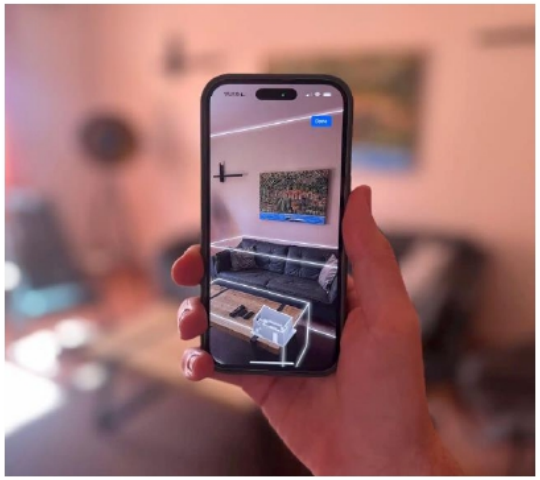
Mobile and Consumer Markets

Representing **~$296B** in Semiconductor Revenue in 2023*

Facial ID



LiDAR Scanner



Proximity Sensor

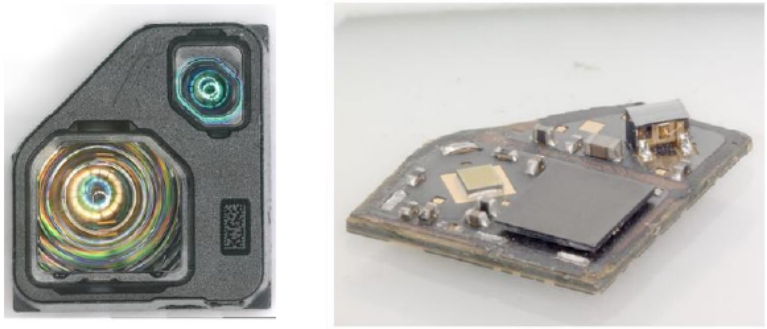
*https://www.yolegroup.com/product/report/semiconductor-trends-in-mobile-and-consumer-2024/

Proximity Sensors in Mobile Devices with Displays

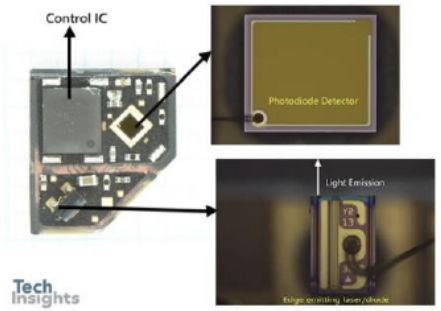
Under the Screen Sensors

Behind the screen sensors minimize cutout but may distort screen

Under Display Proximity Sensor in iPhone 14 Pro:
Enabled by SWIR Laser/Detector Pair



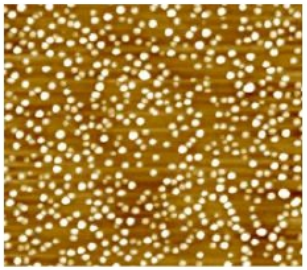
https://www.yolegroup.com/product/report/iphone-14-pro-under-display-proximity-sensor/



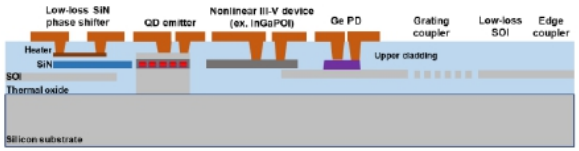
Quantum Dot Lasers

Heterogeneous Integration by Selective Growth

Quantum Dot Lasers

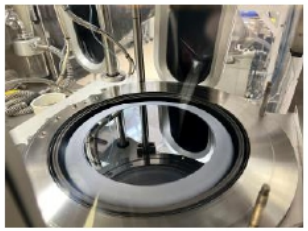


Lasers for Silicon Photonics

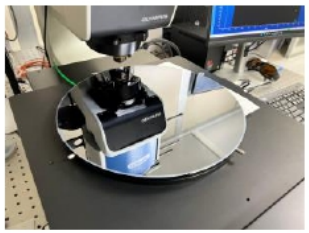


Integration of quantum dot lasers and other group III-V active devices in Silicon Photonics

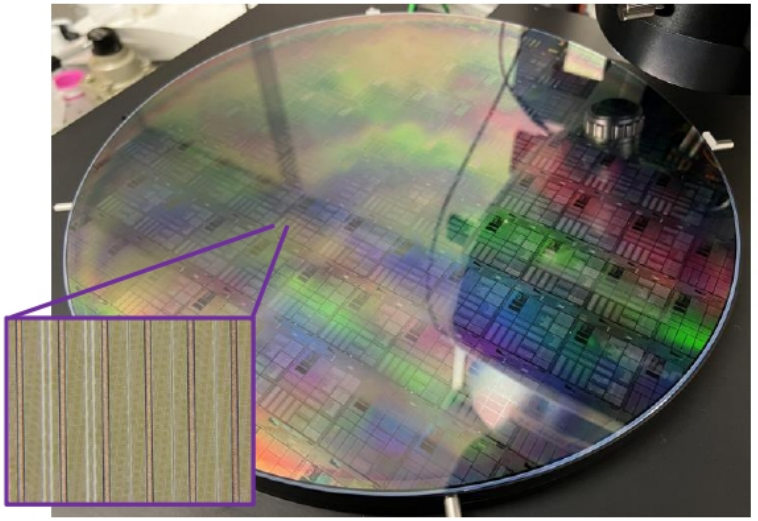
12-inch Wafer in Growth Chamber



12-inch Wafer Under Test



12-inch Silicon Photonics Wafer with Aeluma Materials



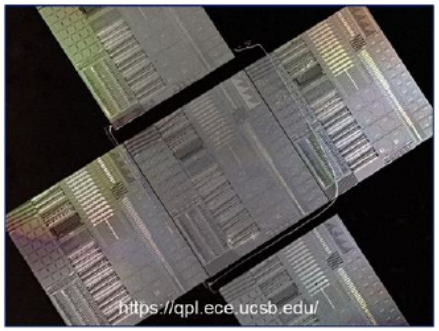
[Aeluma, Inc. Enters into Agreement with RFSUNY to Support AIM Photonics]

Applicable markets include: AI, high-performance computing, automotive, mobile, AR/VR, defense & aerospace, quantum computing, and communication

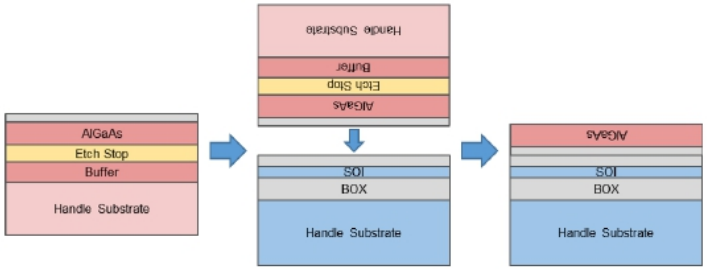
Quantum Computing with Photonics

Entangled Photonic Pair Generation Enabled Heterogeneous Integration

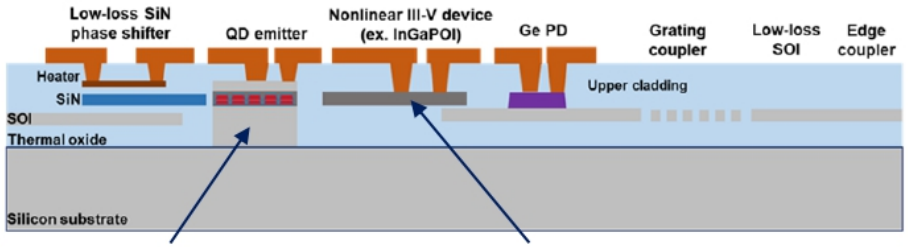
Quantum Photonic Circuits



Adding III-V layer 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

Demonstration on 100mm substrated using Aeluma's 300mm growth capability

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

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 participating as affiliate member of the hub

Future Advanced-Node Semiconductors

Heterogeneous Integration of III-V Materials on Silicon CMOS

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

SEPTEMBER 18, 2024 4:01PM EDT

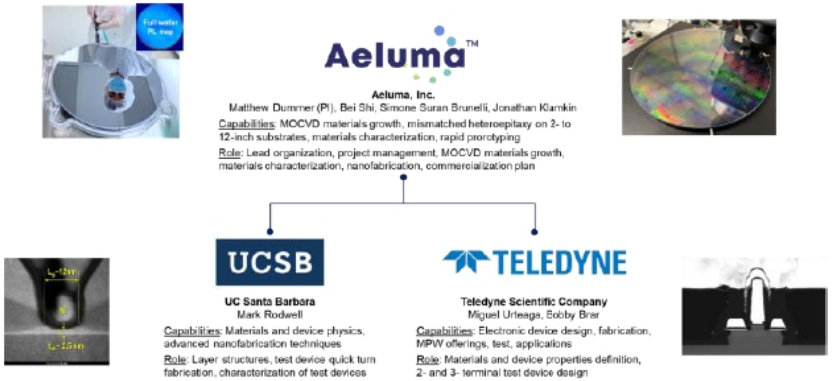
Download as PDF

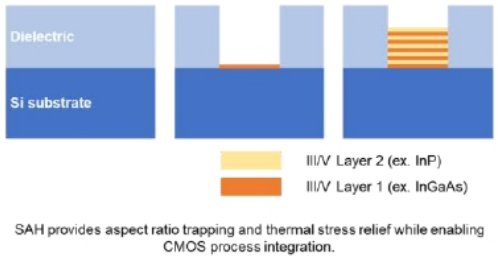
Award to Develop Heterogeneous Integration Technology Compatible with Leading Edge and Future Advanced-Node Semiconductors

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

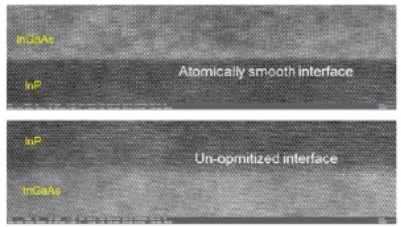
Aeluma Partnering with Teledyne Scientific Company and University of California Santa Barbara

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.

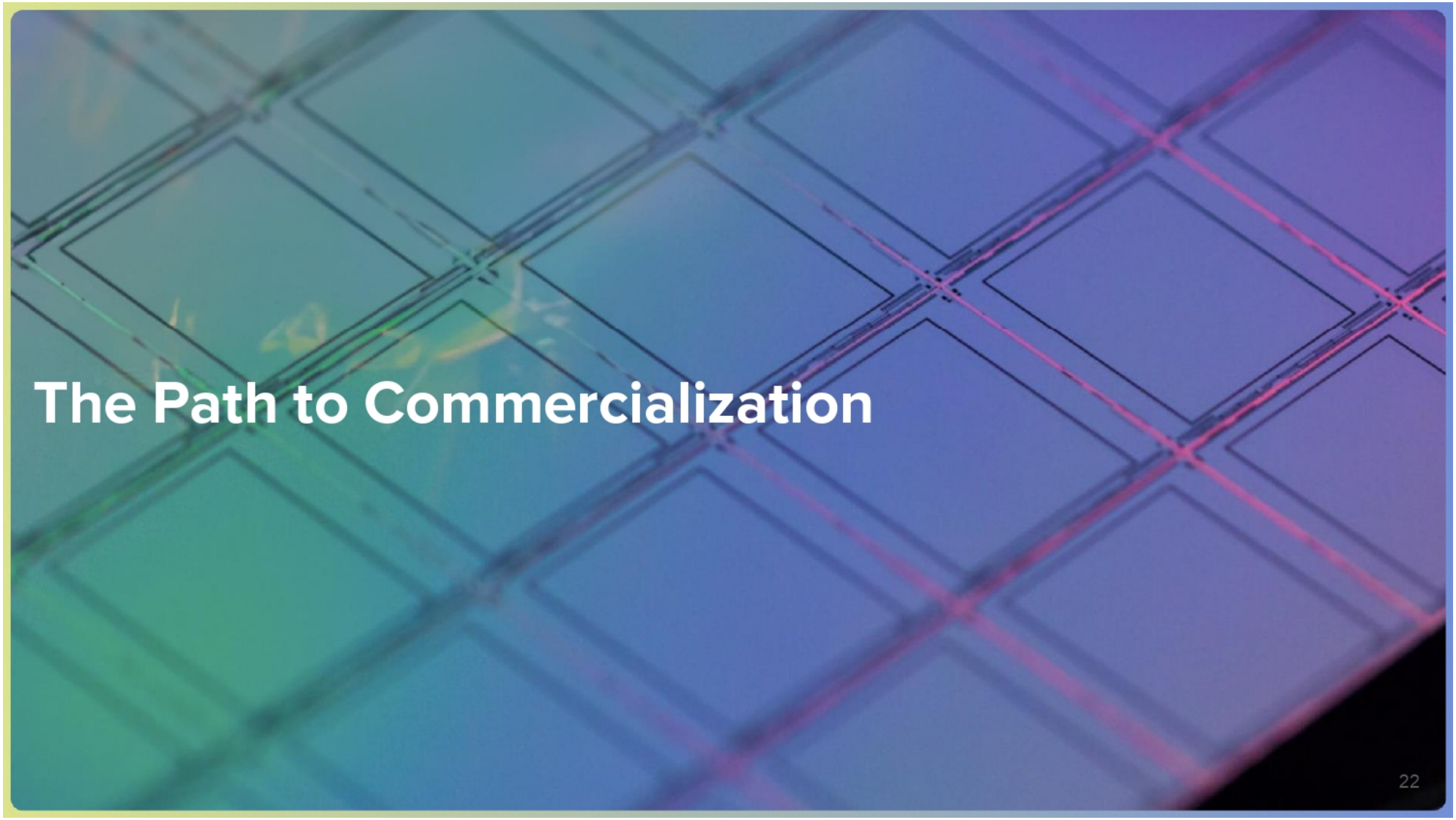




SAH provides aspect ratio trapping and thermal stress relief while enabling CMOS process integration.



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


The Path to Commercialization
22

Aeluma's Headquarters

Ideal Location for Development and Commercialization

- Located in Goleta, California High-Tech Corridor
- 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
Director of Technology

Vixar · ams OSRAM

Board Members

Steven DenBaars, PhD
Advisor, Seed Investor & Director

UCSB · SORAA · SLDLASER · AKOUSTIS

John Paglia, PhD
Director

Pepperdine Graziadio Business School · AXXES Capital · SimulationsPlus

Craig Ensley
Director

imt · DisplayLink · Peregrine Semiconductor · Cirrus Logic

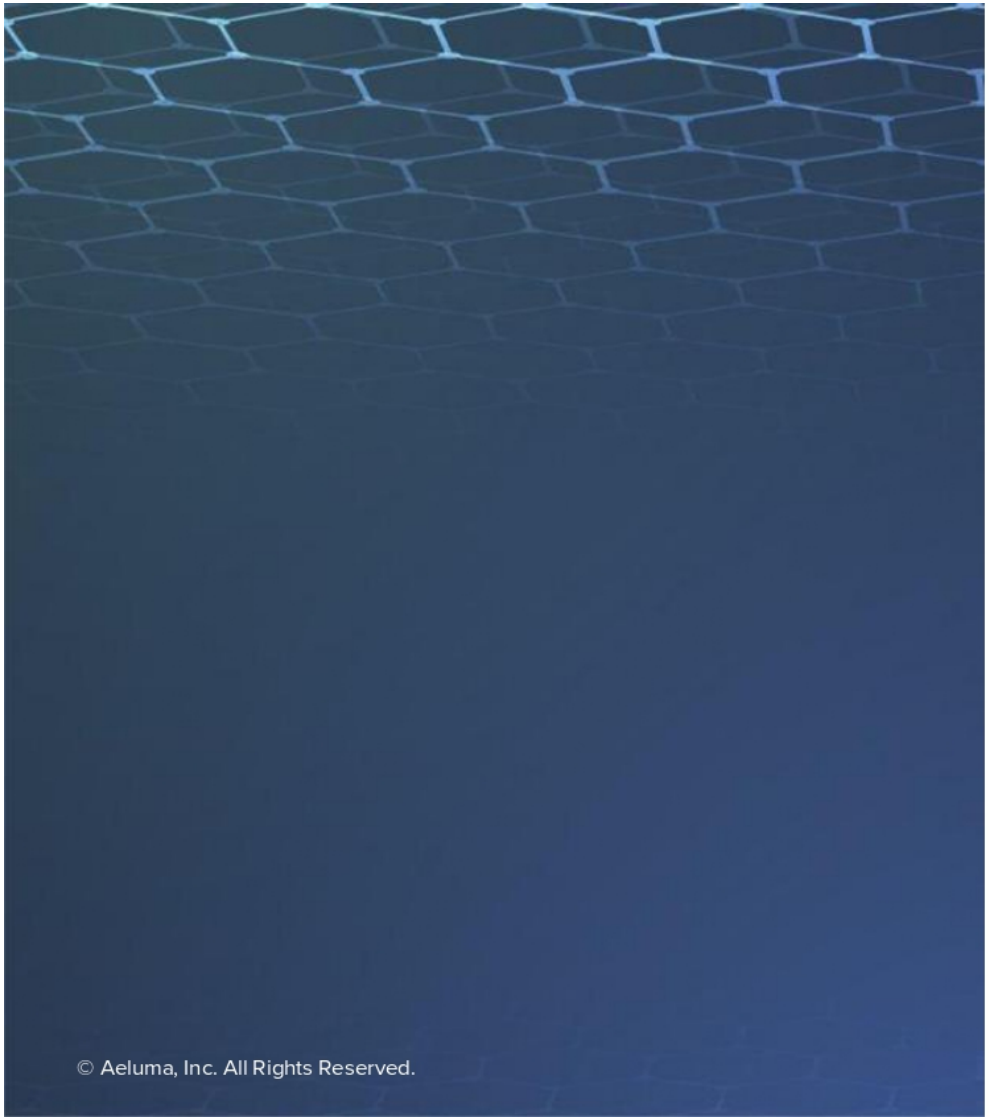
Investors/Advisors

Shuji Nakamura, PhD
Seed Investor

UCSB · SLDLASER · SORAA

Richard Ogawa, JD
Advisor & Seed Investor

Inphi · Amesite · AKOUSTIS



Aeluma™

Sensing Reimagined™

info@aeluma.com
www.aeluma.com