

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report
(Date of earliest event reported): October 3, 2023

Aeluma, Inc.
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation)

000-56218
(Commission File Number)

85-2807351
(IRS Employer
Identification No.)

27 Castilian Drive
Goleta, California
(Address of principal executive offices)

93117
(Zip Code)

805-351-2707
(Registrant's telephone number, including area code)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act: none.

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Item 8.01 Other Events.

We are filing this report to disclose our new investor power point presentation. The presentation is furnished as Exhibit 99.1 to this Current Report on Form 8-K.

Neither this report nor the exhibits attached hereto constitute an offer to sell, or the solicitation of an offer to buy our securities, nor shall there be any sale of our securities in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to the registration or qualification under the securities laws of any such state or jurisdiction.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

Exhibit Number	Exhibit
99.1	Power Point Presentation
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

AELUMA, INC.

Date: October 3, 2023

By: /s/ Jonathan Klamkin
Jonathan Klamkin
President, Chief Executive Officer and Director





Investor Presentation

October 2023

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Forward Looking Statements



This presentation contains summary information about Aeluma, Inc. ("Aeluma") as of the date hereof. The information in this presentation is of general background and contains an overview and summary of certain data selected by the management of Aeluma. It does not purport to be complete.

This presentation is not a prospectus, disclosure document or offering document under the law of any jurisdiction. It is for informational purposes only. This presentation is not investment or financial product advice (nor tax, accounting or legal advice) and is not intended to be used for the basis of making an investment decision. A recipient must make their own independent investigations, consideration and evaluation of Aeluma and the offer and Aeluma recommends that investors should obtain their own professional advice before making any investment decisions in the company. This investor presentation shall also not constitute an offer to sell or the solicitation of an offer to buy any securities, nor shall there be any sale of securities in any states or jurisdictions in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such jurisdiction. No registered offering of securities shall be made except by means of a prospectus meeting the requirements of section 10 of the Securities Act of 1933, as amended.

This document has been prepared based on information available at the time of presentation. No representation or warranty, express or implied, is made as to the fairness, accuracy or completeness of the information, opinions and conclusions contained in this presentation or any omission from this presentation or of any other written or oral information or opinions provided now or in the future to any person. While reasonable care has been taken to ensure that facts stated in this presentation are accurate and/or that the opinions expressed are fair and reasonable, no reliance can be placed for any purpose whatsoever on the information contained in this document or its completeness.

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Some of the statements appearing in this presentation are in the nature of forward looking statements. You should be aware that such statements are predictions based on assumptions, and are subject to inherent risks and uncertainties. Those risks and uncertainties include factors and risks specific to the industry in which Aeluma operates as well as general economic conditions, prevailing exchange rates and interest rates and conditions in the financial markets and other factors that are in some cases beyond Aeluma's control. As a result, any or all of the Aeluma's forward-looking statements in this presentation may turn out to be inaccurate and actual results may be materially different than those expressed in such forward-looking statements. Except as required by law, we are under no duty to update or revise any of the forward-looking statements, whether as a result of new information, future events or otherwise, after the date of this presentation. These forward-looking statements speak only as of the date of this presentation, and we assume no obligation to update or revise these forward-looking statements for any reason.

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At a Glance



Aeluma, Inc. (OTCQB: ALMU)

Goleta, California

Transformative semiconductor chip company
High performance combined with scalability

Markets: Automotive LiDAR, Mobile, AR/VR, Communication, Defense & Aerospace, AI

Team: ~15 people

IP: ~23 issued and pending patents, trade secrets

Traction: Engineering sample deliveries, contracts, multiple customers, revenue

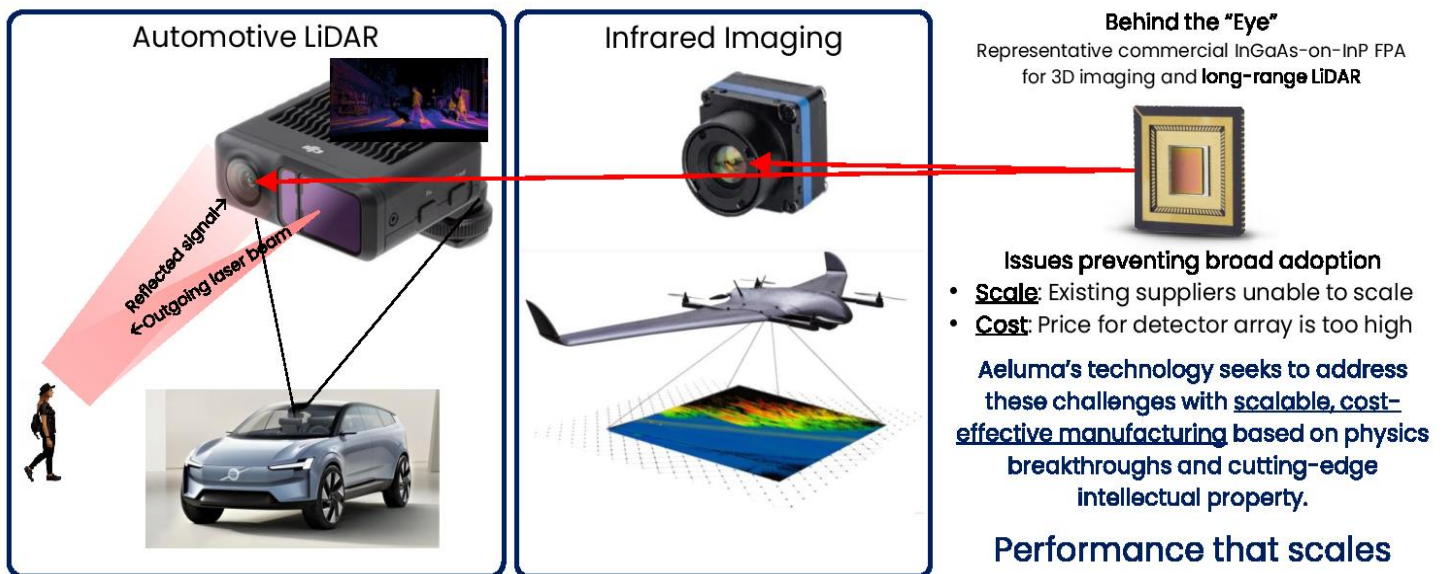


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Background on Automotive LiDAR

High-Performance Semiconductor Sensors for Autonomous Systems



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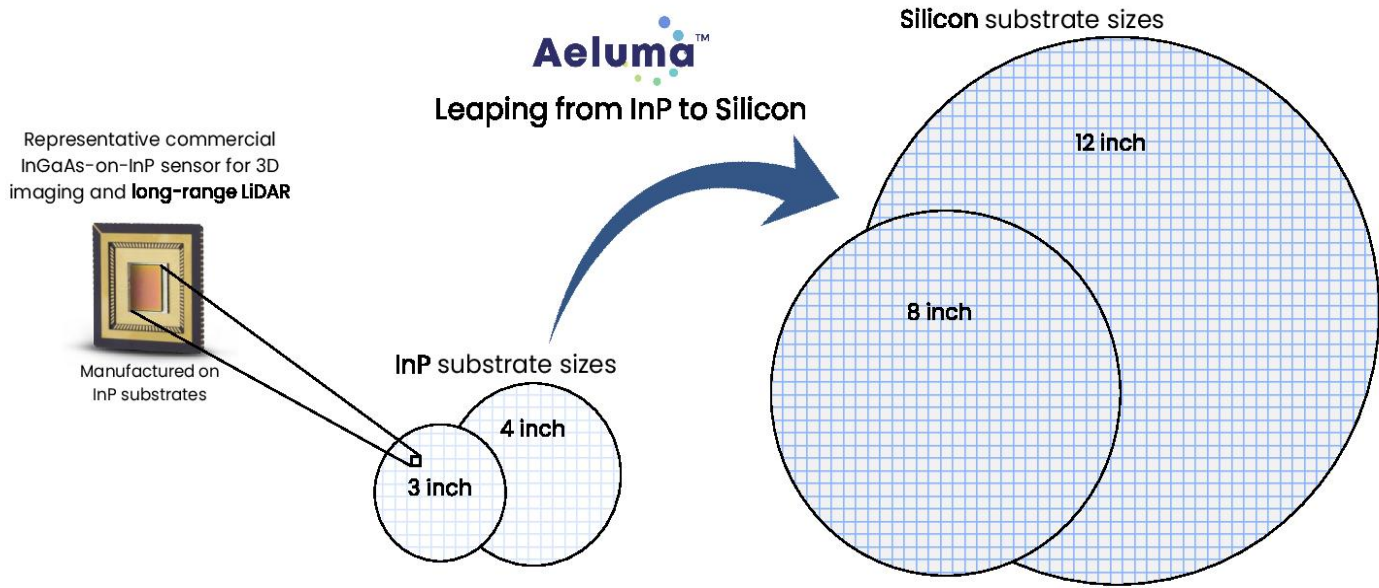
LIDAR: Light detection and ranging; InGaAs: Indium Gallium Arsenide; InP: Indium Phosphide; FPA: Focal plane array. Note: Outcomes cannot be guaranteed.
Sources of images: <https://www.flir.com/support/products/swir-ingaas-fpa/>; <https://www.bhphotovideo.com>; <https://www.wardsauto.com/vehicles/lidar-house-battery-production-volvo-s-sights>; <https://ouster.com/blog/mh>; <https://www.foresightauto.com/thermal-cameras-solve-autonomous-trucks-dust-problem/ake-intersections-safer-trib/>; <https://www.deltaquad.com/vtol-drones/inspect/>; www.digikay.com

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The Aeluma Approach to Sensor Manufacturing



High-Performance Technology with Large-Diameter Substrate Manufacturing



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InGaAs: Indium Gallium Arsenide; InP: Indium Phosphide; LiDAR: Light detection and ranging; FPA: Focal plane array
Source of image: <https://www.flir.com/support/products/swir-ingaas-fpa/>; Note: Outcomes cannot be guaranteed.

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Aeluma's Technology Breakthrough



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

Conventional manufacturing of InGaAs photodetector arrays

Non-scalable, manual and low throughput

16X wafer area

Moving from 3-inch to 12-inch wafers

Aeluma high-performance InGaAs photodetector arrays with Silicon manufacturing

- ✓ Highly automated and ability to produce many arrays per wafer
- ✓ 10X lower manufacturing cost for mass market applications

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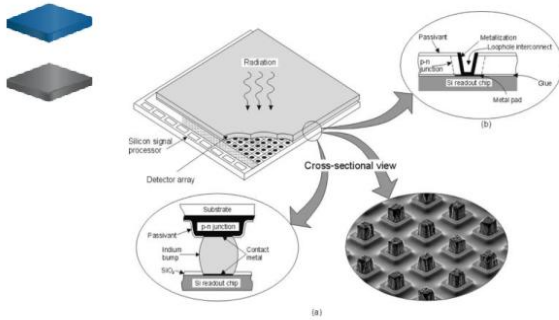
Note: Outcomes cannot be guaranteed.

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Wafer-Scale Integration and 3D Packaging

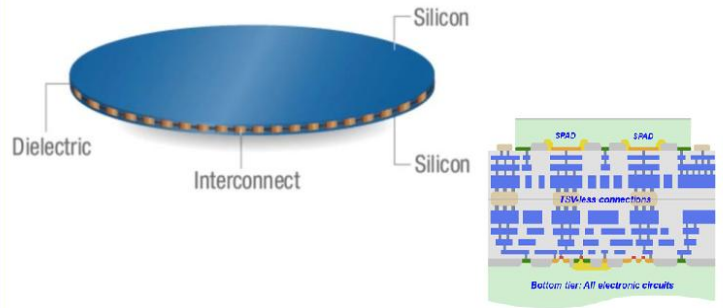
Silicon Manufacturing Environment Enables Advanced Integration and Packaging

Conventional chip-to-chip hybridization



- Expensive packaging with low throughput
- Limited performance indium bumps
- Pixel sizes limited to ~5 μm (>10 μm typical)

Wafer-to-wafer 3D Integration



- ✓ Low cost and high throughput
- ✓ Higher performance with low capacitance copper interconnect
- ✓ Small pixels (<1 μm possible)
- ✓ 3D stacking of multiple CMOS layers

Aiming to Service a Broad Market

High-Performance Semiconductors for Sensing and Communications

Automotive LiDAR



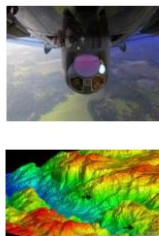
- Consumer vehicles
- Robotaxis
- Trucking

Industrial and Logistics



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

Defense & Aerospace



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

Mobile and AR/VR



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

Communications, Quantum and AI



- Telecommunications
- Data centers
- Quantum computing
- 5G/6G
- AI communications


Aggregate of these Markets is \$Trillions

Aiming to Service a Broad Market

High-Performance Semiconductors for Sensing and Communications



Automotive LiDAR



- Consumer vehicles
- Robotaxis
- Trucking


2024 Market Projections¹

113 million automotive vehicles
131 million tablets
1.73 billion mobile phones

2030 TAM for Automotive LiDAR^{2,3,4}

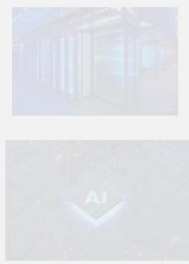
\$5B-\$80B

Mobile and AR/VR



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

Communications, Quantum and AI



- Telecommunications
- Data centers
- Quantum computing
- 5G/6G
- AI communications

Aggregate of these Markets is \$Trillions

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1. www.idc.com; 2. <https://www.bloomberg.com/press-releases/2022-05-31/lidar-market-size-to-be-worth-4-71-billion-by-2030-grand-view-research-inc>; 3. AEye Presentation, LD Micro Invitational 2022; 4. Velodyne estimate; Note: Past results are not indicative of future results; outcomes cannot be guaranteed.

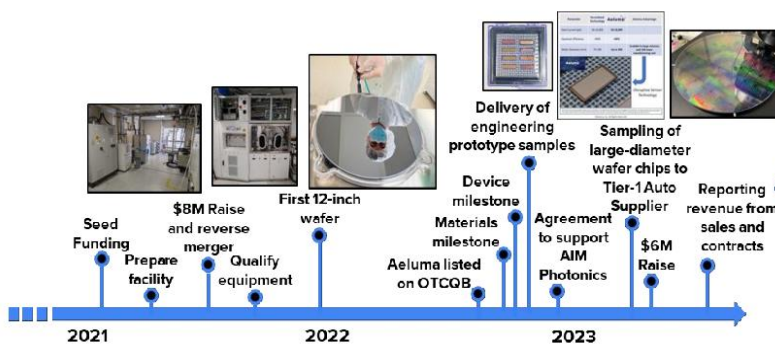
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NEWS: First Ever Revenue Reported

Aeluma's Annual Report on Form 10-K Reports Revenue from Multiple Customers



Aeluma's Timeline



Aeluma has met or beat all of its milestones

Revenue Reported

- Aeluma recognized revenue of ~\$193K from its products in fourth fiscal quarter ended June 30, 2023 (see 10-K filed on September 25, 2023)
- Revenue generated primarily from small-volume orders and development projects
- Company receiving payments from three customers and has several pending contracts

Achieving revenue after only little more than 2 years from our initial private placement financing

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

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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 | [f](#) [t](#) [r](#)

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."

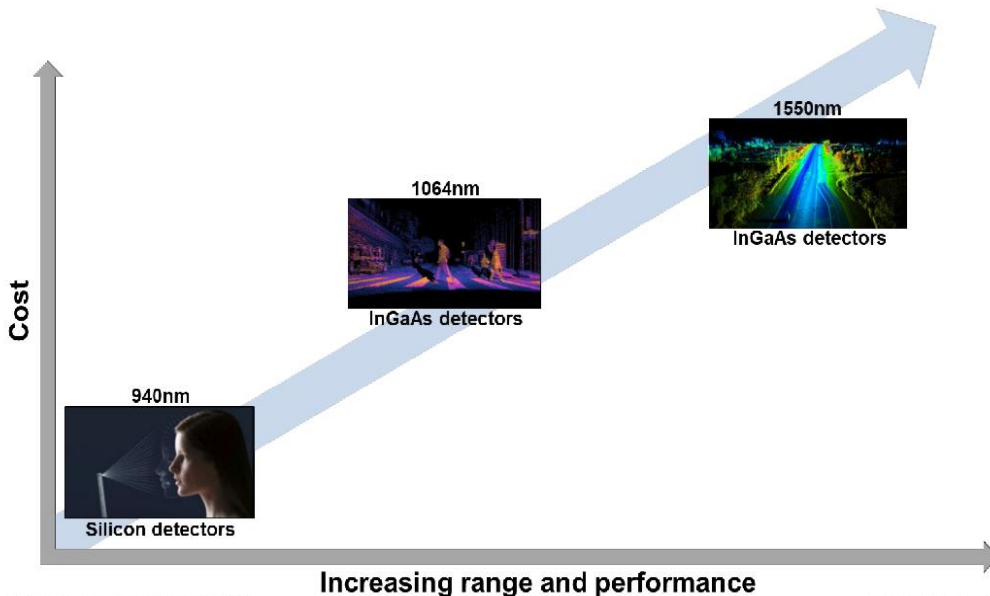
Source: <https://www.defense.gov>

- 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 looks forward to participating as affiliate member of the hub

Aeluma's Initial Focus on Automotive LiDAR



- LiDAR is essential for Autonomous Driving (AD) and Advanced Driver Assistance Systems (ADAS).¹
- Mid- and long-range LiDAR sensors require InGaAs-based receivers², however, InGaAs manufacturing is expensive and low volume therefore preventing scaling and broad adoption.³



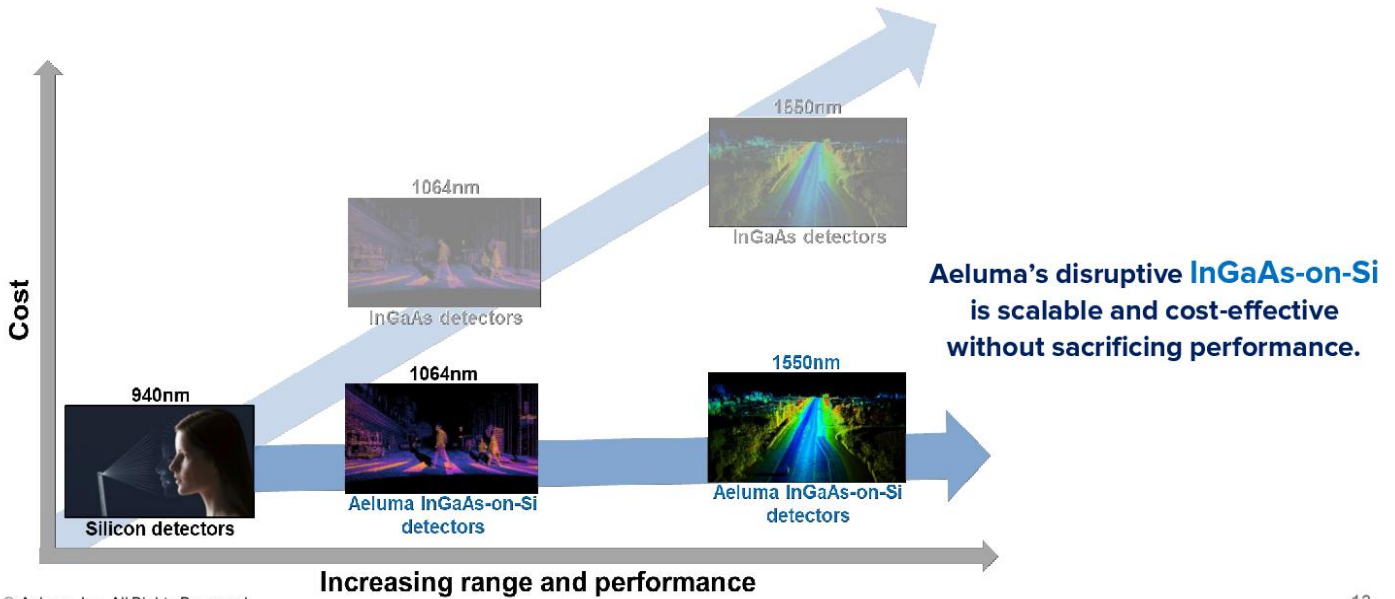
Note: Past results are not indicative of future results. Outcomes cannot be guaranteed. Range and cost estimates not based on actual data. Sources of images: [blog.laserto.com](#); [novuslight.com](#); [techcrunch.com](#); [microwaves.com](#)

1. <https://www.ihc.org/news/detail/pedestrian-crash-avoidance-systems-cut-crashes-but-not-in-the-dark>
2. C. Rablau, "LiDAR – A new (self-driving) vehicle for introducing optics to..." ETOP 2019, paper 1143_138.
3. <https://www.mdpi.com/2076-3417/9/19/4093>

Aeluma's Goal:

To Provide Increased Visibility and Longer Range Cost Effectively

Manufacturing high-performance InGaAs photodetector arrays at Silicon cost levels



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Note: Past results are not indicative of future results. Outcomes cannot be guaranteed. Range and cost estimates not based on actual data. Sources of images: blog.laserto.com; novuslight.com; techcrunch.com; h-microwaves.com

Si Silicon

Emerging Market: Automotive OEM LiDAR Demand is Increasing



Mercedes Taps Luminar for Laser Sensors, Takes Stake in the Company

- Technology company also has production pacts with Volvo, SAIC
- European automakers 'ahead of the game' on lidar, CEO says

By Gabrielle Coppola
January 20, 2022, 6:00 AM PST Updated on January 20, 2022, 9:41 AM PST

From **Hyperdrive**



Volvo Will Install Lidar on All New Vehicles

Recently it was announced that Volvo will install LiDAR systems onto all new vehicles to help identify potential dangers at extreme distances.

Source and Image: LiDAR News, October 12, 2022
<https://blog.lidarnews.com/volvo-will-install-lidar-on-all-new-vehicles/>



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Note: Past results are not indicative of future results. Outcomes cannot be guaranteed.

Emerging Market: Automotive OEM LiDAR Demand is Increasing

TRANSP / MERCEDES-BENZ / CARS

Mercedes-Benz will add Luminar lidar to 'a broad range' of vehicles by mid-decade



Image: Mercedes-Benz AG

/ The two companies are expanding their partnership to include a lot more vehicles sporting the laser sensor that has quickly become an essential ingredient in autonomous driving.

By Andrew J. Hawkins, transportation editor with 10+ years of experience who covers EVs, public transportation, and aviation. His work has appeared in The New York Daily News and City & State.

Feb 22, 2023, 10:30 AM PST | 0 Comments / 0 New



Source: <https://www.theverge.com>

Emerging Market: Automotive OEM LiDAR Demand is Increasing



Toyota's LS 500h and Mirai models with short and long-range LiDAR
Image Credit: Toyota

<https://www.motor1.com/news/499716/lexus-toyota-advanced-drive-system/>



Image Credit: MIRISE (DENSO / Toyota)

Emerging Market: Automotive OEM LiDAR Demand is Increasing



Nissan Motor Corporation: “Nissan aims to expand ProPILOT technology to over 2.5 million Nissan and INFINITI vehicles by fiscal year 2026. The company will also further develop its autonomous vehicle technologies, aiming to incorporate next generation LiDAR systems on virtually every new model by fiscal year 2030.”

<https://usa.nissannews.com/en-US/releases/nissan-unveils-ambition-2030-vision-to-empower-mobility-and-beyond>

Emerging Market: Automotive OEM LiDAR Demand is Increasing



Source: TESLARATI Aug 3, 2022



Israeli lidar startup [Innoviz](#) struck a deal reported to be worth **\$4 billion** with Volkswagen to supply advanced ADAS (advanced driver-assistance system) features for its next generation of automated vehicles. The deal will run for eight years starting “mid-decade”, when the first Innoviz-equipped Volkswagen group vehicles are expected to ship. **Innoviz expects to supply units for between 5 million and 8 million Volkswagen Group vehicles in total.**

Source: NoCamels Aug 3, 2022

Emerging Market: Automotive OEM LiDAR Demand is Increasing

Volkswagen's autonomous ID.Buzz EVs to begin transporting passengers in Germany

Scooter Doll | Jul 14 2023 - 6:26 am PT | 12 Comments

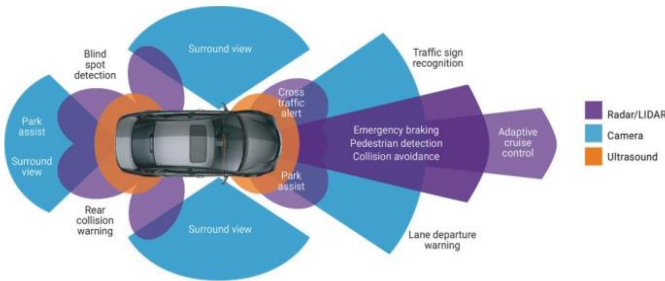


Source: <https://electrek.co>

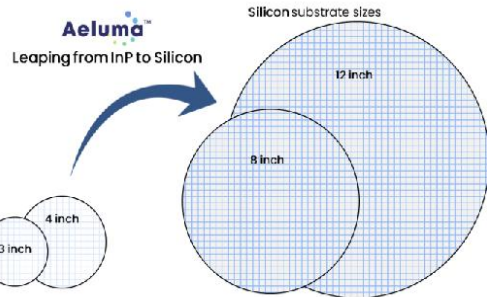
Manufacturing for a Mass Market

Aeluma's Large-Diameter Manufacturing Economies of Scale

Cars will have Radar, LiDAR, and Camera sensors



- **Market: 113 million** automotive vehicles in 2024¹
- **Each vehicle may have 1-5 LiDAR sensors**
- **Note: Some LiDARs require more than 1 FPA**



Example case: Manufacturing 5,000,000 FPA units

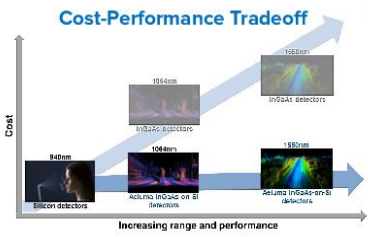
Number of wafers required	
3-inch: 106,383 wafers	8-inch: 10,706 wafers
4-inch: 53,192	12-inch: 4,425
Number of chips per wafer	
3-inch: 47 chips per wafer	8-inch: 467 chips per wafer
4-inch: 94 chips per wafer	12-inch: 1,130 chips per wafer

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

Aeluma Outperforms the Competition



Technology Comparison



	Incumbent technologies		Technologies under consideration for scaling and cost reduction		
Technology:	12 inch Silicon Silicon SPAD	3 inch InP InGaAs-on-InP	12 inch Silicon Ge-on-Si	12 inch Silicon Thin film	12 inch Silicon Aeluma™ InGaAs-on-Si
Status:	Incumbent for short-range	Incumbent for long-range	Considered for long-range	Considered for long-range	Considered for long-range
Performance:	Good	Best	Okay	Okay	Best
Multiplication (ex. APD, SPAD):	Yes	Yes	Maybe	No	Yes
Wafer-scale integration:	Yes	No	Yes	Yes	Yes

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.

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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.

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Aeluma's Headquarters



Ideal Location for Development and Commercialization

- Located in Goleta, California High-Tech Corridor
- In the heart of the Infrared Capital of the World
- 9,000 sq. ft. space with cleanroom facility
- Close to University of California Santa Barbara



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Aeluma's Cost-Effective Scalable Manufacturing



Unique 12-inch Wafer Capability and Strong Intellectual Property

- Commercial 12-inch state-of-the-art deposition tool
- Set up for cassette loading production
- One of only a few such tools worldwide
- Extensive patent protection and trade secrets



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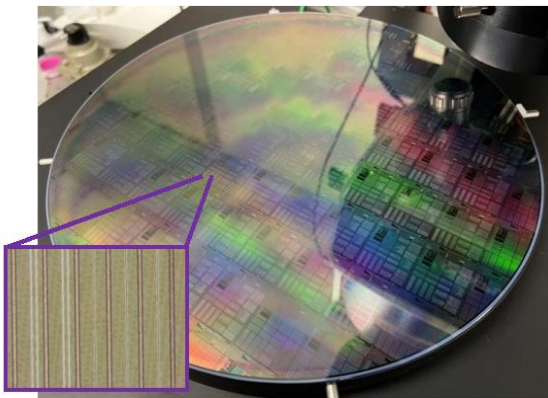
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Silicon Photonics and Laser Integration



Aeluma's Technology Can Enable Process Integration

12-inch Silicon Photonics Wafer with Aeluma Materials



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

Silicon Photonics Applications

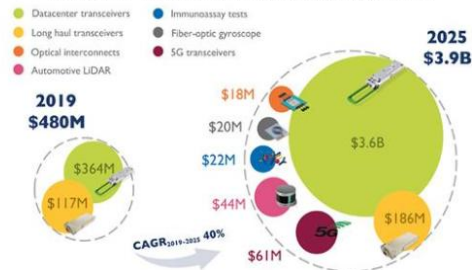
High-Performance Computing and Data Centers



AI and Photonic Computing



Summary of Applications and Market Data



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Outcomes cannot be guaranteed. Source of market data: <https://optics.org/news/11/5/12>
Sources of images: <https://venturebeat.com>; <https://spie.org/news/photonic-focus>

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Aeluma Intellectual Property Strategy



Key Aspects and Status

- Trade Secrets
 - Secret information that provides a competitive advantage
 - Reasonable precautions taken to preserve secrecy
 - Examples: confidential business information, process recipes, chip designs, layer structures, employees and skill levels
- Patents (~23 issued and pending patents)
 - Aim to cover nearly all aspects of technology including systems, applications, architectures, circuits, materials, packaging and assembly, process, device manufacturing, testing, structures
- Trademarks (“Aeluma™” and “Sensing reimaged™”)
- Agreements including Non-Disclosure Agreements



Our Leadership Team



Vision, Entrepreneurship and Expertise



Jonathan Klamkin, PhD
Founder, CEO &
Director



Shuji Nakamura, PhD
Seed Investor



Matthew Dummer
Director of Technology



Jeffrey Shealy, PhD, MBA
Advisor & Seed Investor



Steven DenBaars, PhD
Advisor, Seed Investor &
Director



Palvi Mehta
Director



Richard Ogawa, JD
Advisor & Seed Investor



John Paglia, PhD
Director

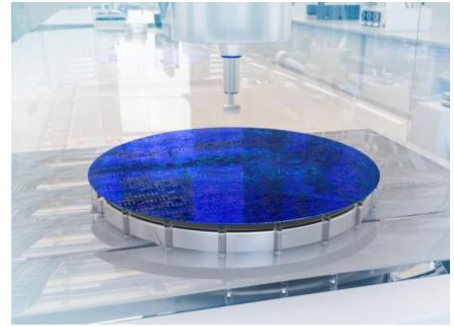


Aeluma Plans and Next Steps

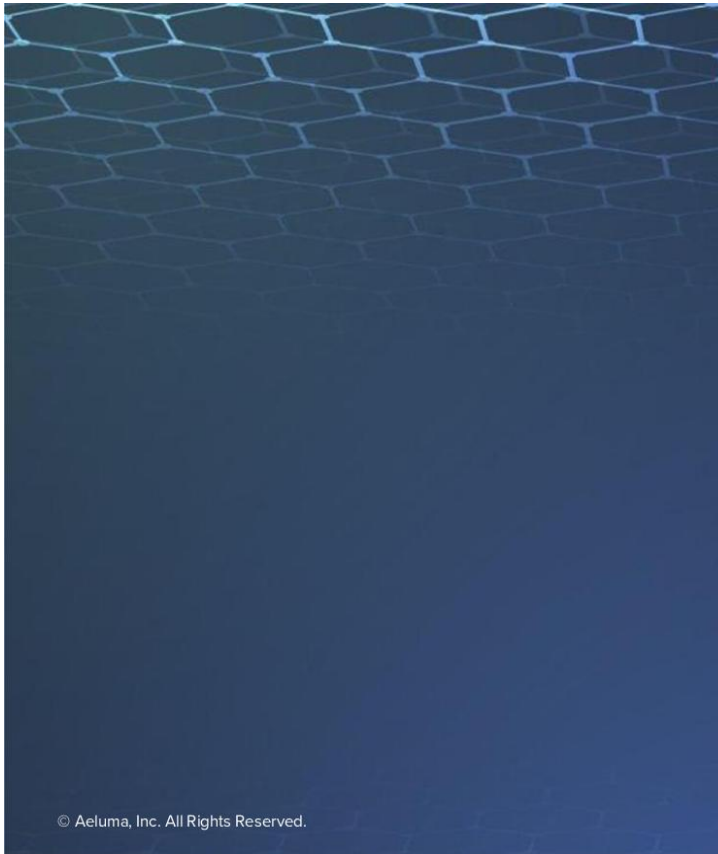


Building on our Momentum

- Deliver on customer orders and contracts
- Government funding opportunities with industrial partners
- CHIPS Act opportunities
- Further establish production-scale foundry process and pursue strategic relationships
- Further business development opportunities
 - Continue to focus on automotive LiDAR
 - Broaden scope to include mobile, AR/VR, AI, industrial LiDAR, robotics, defense & aerospace, communications
- More inventions and patent protection
- Next generation products



Ready Aeluma for Mass-Market Scale



Sensing Reimagined™

info@aeluma.com

www.aeluma.com