Quantum precision - the new frontier in visible lasers

BluGlass Limited (ASX:BLG), May 2025

FORWARD LOOKING STATEMENT

This document has been prepared by BluGlass Limited to provide readers with an update of the Company and the Company's technology.

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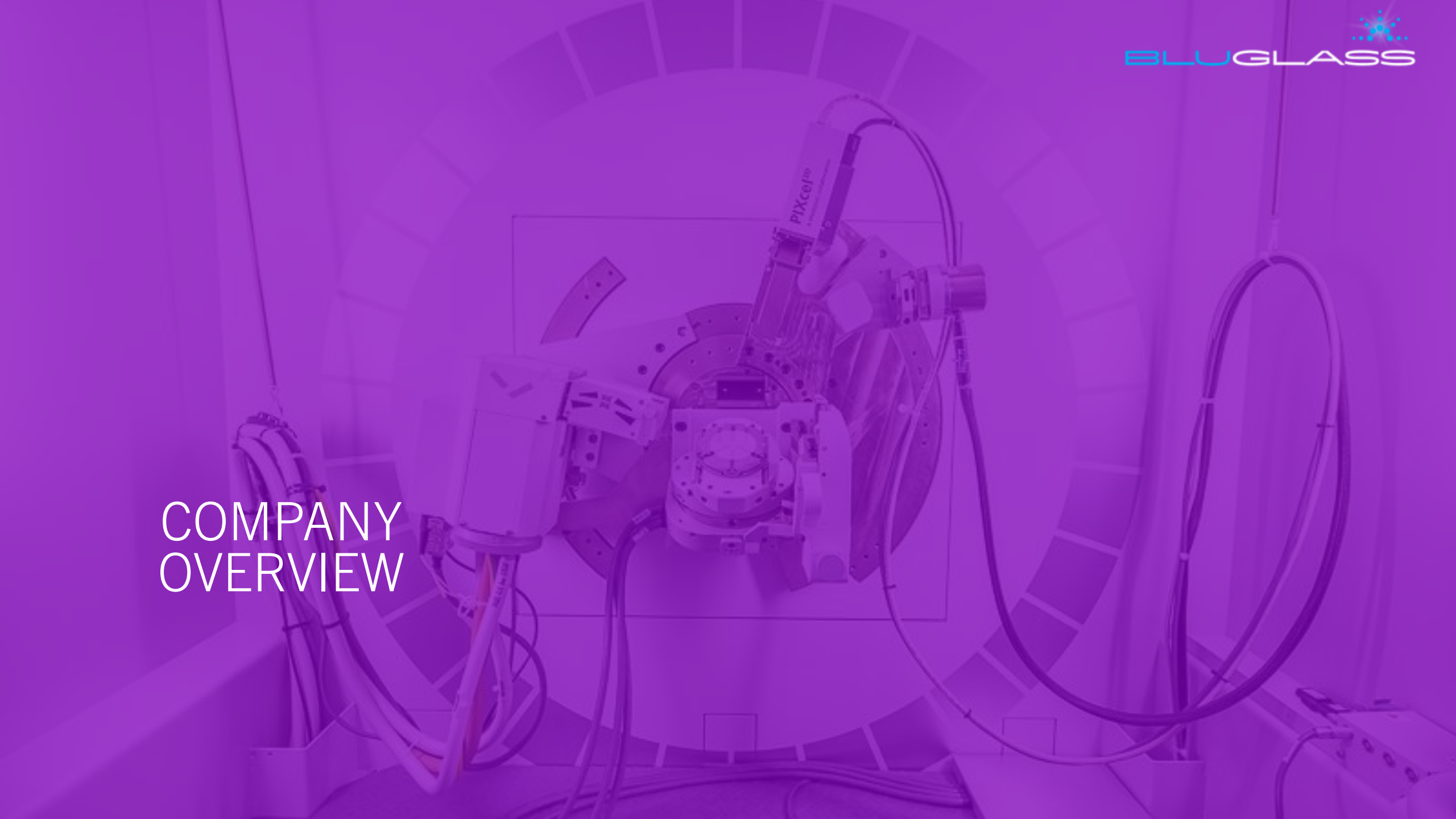
This document includes certain information which reflects various assumptions, subjective judgment and analysis, and is subject to significant business, economic and competitive uncertainties, risks and contingencies, many of which are outside the control of, and are unknown to, BluGlass Limited. The assumptions may not prove to be correct. Recipients of the document must make their own independent investigations, consideration and evaluations prior to making any decisions to invest in the Company.

Information on Service Addressable Markets (SAM) is based on internal BluGlass modelling and assumptions, both of which depend on successful R&D outcomes and results achieved within estimated timetables. BluGlass recommends a cautious interpretation be taken by investors.



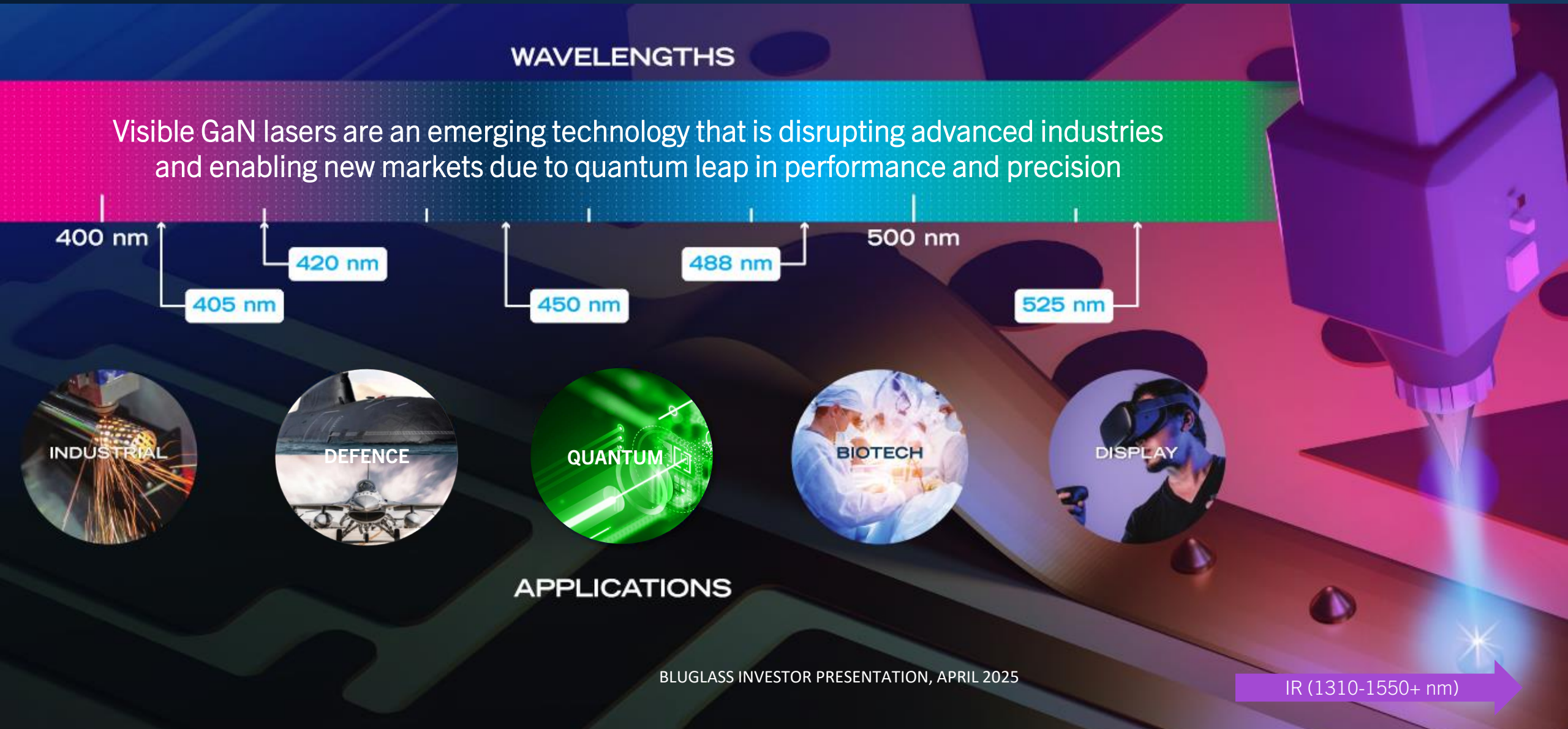
COMPANY OVERVIEW

EXECUTIVE SUMMARY – SCALING TO GLOBAL MARKETS

Leading GaN Laser Supplier	• BluGlass is the world's first pure-play gallium nitride (GaN) laser company supplying to the global photonics industry • GaN lasers are advanced semiconductor devices essential to the function of a wide variety of applications, including advanced manufacturing, defence, aerospace, navigation, automotive, AR/VR displays, 3-D printing, bio-medical devices, quantum sensing and computing, and more.
Large and Rapidly Growing Global Markets with Few Competitors	• Global laser revenue is forecast to surpass US$25B by 2025*. Driven by growth in high-tech applications, the GaN laser diode segment is rapidly expanding, predicted to reach US$2.5B in the same period • BluGlass is one of a handful of GaN laser diode suppliers able to meet the significant global unmet market for laser diodes.
Strategic Partnerships with Defense Primes and Global Companies	• BluGlass partners with globally leading companies, government agencies (US DoD), defence primes, and research universities on large, revenue generating projects to advance and commercialise its products • Model provides non-dilutive capital to support the direct-to -market GaN laser business, slower to scale but with greater long-term opportunity.
Unique Competitive Advantages to Drive Growth	• World leading DFB laser capabilities for ultra high-precision lasers for next-gen defence, aviation, navigation, and quantum applications • Custom manufacturing and development agility means BluGlass is selected by key partners, including the US DoD's Microelectronics Commons • Unique IP for novel device architectures that solve critical industry challenges • Healthy pipeline of large development agreements and long-term projects in various stages of negotiation.
Recent Wins	• US$5.5M US Department of Defense subcontracts for laser development with North Carolina State University (A$2.6M + A$2.9M) • A$1.2M contract with a VC backed start-up developing novel technology in $5B market opportunity • MoU with Applied Energetics to advance laser systems for military and commercial applications • A$1.93M from European after developer customer from transfer of IP rights • US$120k repeat order for GaN lasers.
Upcoming Catalysts	• Development contract announcements with key government agencies, defence primes, and OEMs • Master supply agreements with development partners
Capital Raise	Capital Raise of approximately $8.3m comprising; • A Placement of approximately 180.9m ordinary shares to raise A$2.3m ("Placement") under existing LR7.1 & 7.1A placement capacity* • A Share Purchase Plan to eligible shareholders on the same terms as the Placement to raise approximately $6m ("SPP")
Use of Funds	• Scaling Product Delivery & Capital Expenditure $6.8M • General Working Capital and cost of the offer $1.5M

WHO WE ARE: THE LEADING PURE PLAY GaN LASER SUPPLIER

BluGlass is one of only a handful of global GaN laser suppliers, with rapidly growing demand and high-barriers to entry



WHO WE ARE: THE LEADING PURE PLAY GaN LASER SUPPLIER

Launched suite of GaN Visible laser diodes

Products available in underserved wavelengths and flexible form factors to address key customer challenges.

Growing customer engagement & revenues

BluGlass is partnering with industry leaders, including the US Department of Defense, global defence primes, OEMs, national labs and research institutes, and device manufacturers.

Proprietary technology; 58 patents

RPCVD manufacturing process enables novel, brighter and higher efficiency laser diodes.

Few competitors in rapidly growing market

One of just a handful of GaN laser manufacturers globally, with high barriers to entry. BluGlass is only pure-play GaN laser supplier not captive in commoditised markets.

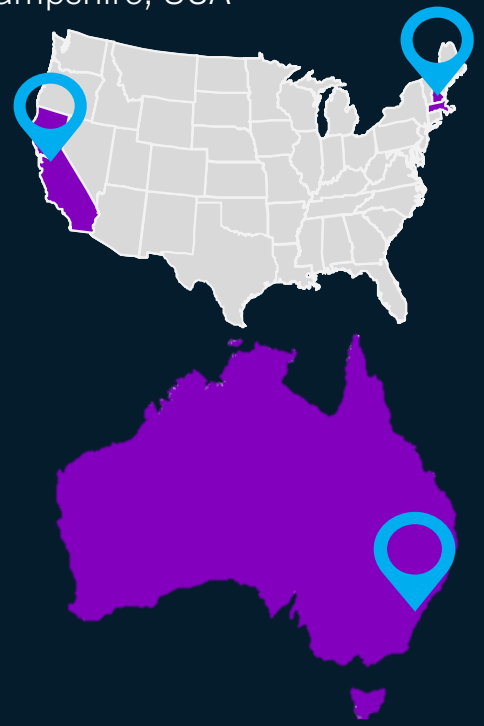
Expert laser and manufacturing team

Highly experienced manufacturing team, led by laser diode veteran Jim Haden.

Global operations

Vertically integrated across three production facilities:

- Sydney, NSW, Australia
- Silicon Valley, California, USA
- Nashua, New Hampshire, USA



ASX: BLG

BLUGLASS IN 2025

Global leader in visible lasers for high-fidelity and precision applications

Industry-leading narrow-line width GaN DFB and single mode MOPA lasers

World-record performance

State-of-the-art single-mode GaN laser performance - for next-gen quantum, aerospace & defence applications

Launched gain-chips at Photonics West

Next-generation gain-chips unveiled at the world's largest photonics conference, accelerating industry adoption

Expanding world-leading IP

Strengthening competitive edge with new provisional patents protecting novel power, precision, and tunability architectures

Growing opportunity pipeline

Diverse portfolio of high-value engagements across defence, aerospace, quantum, and medical markets

Tech titan advisory board

Strategic guidance from a world-class advisory board with deep expertise across photonics, semiconductors, and commercial scaling.

Industry is choosing BluGlass to develop next-generation power and precision applications driving new frontiers in quantum, defence and aerospace

GROWING MOMENTUM - $6M+ IN RECENT CONTRACT WINS

$2.9M

Won A$2.9M US Department of Defense (DoD) sub-contract with Microelectronics Commons CLAWS Hub. To advance BluGlass laser capabilities in key dual-use markets: quantum, defence, commercial aviation, bio-medical and sensing

$1.2M

Entered multi-phased JDA with US semiconductor pioneer to develop novel Photonic Integrated Chips (PICs). Secured A$1.2M for first phase of development, entered follow-on master supply agreement for commercialisation in ~$5B by 2030 market.

$1.9M

Secured single largest customer payment of $A1.93 million by European wafer customer for transfer of non-laser IP rights, developed under paid foundry contract

MOU

MOU with Applied Energetics to combine high-performance solutions and expertise across a wide range of emerging technologies

GROWING DEMAND AND MARKET VALIDATION

Manufacturing flexibility

BluGlass' laser offering addresses underserved markets, wavelengths and delivered in flexible form factors.

Dedicated GaN laser supplier

A dedicated GaN laser supplier targeting the quantum, scientific, biotech, defence and industrial markets.

Differentiated offering & novel capabilities

BluGlass' novel capabilities are attracting top-tier strategic partners, progressing through our project pipeline

Development capability

Supporting customer product roadmaps with development capability to power innovative new applications.

Solving our customers greatest challenges

Packaging and customisation flexibility to reduce customer integration costs, solving key challenges.

BluGlass' go-to-market strategy has been validated by strong customer demand and market recognition.

Our partners are choosing to work with us to solve challenges, develop novel capabilities, and create new markets.

LEADERSHIP TEAM: DEEP LASER INDUSTRY EXPERTISE

BOARD OF DIRECTORS

James Walker
NON-EXECUTIVE CHAIR
Experienced technology commercialisation leader; Chartered Accountant

Jean-Michel Pelaprat
NON-EXECUTIVE DIRECTOR
Co-founder of blue-laser pioneer, NUBURU; 30 years' semiconductor experience

Stephe Wilks
NON-EXECUTIVE DIRECTOR
Seasoned corporate executive; proven track record in high growth and disruptive industries

Vivek Rao
NON-EXECUTIVE DIRECTOR
Global semiconductor equipment specialist; Executive VP and COO of SPT Micro-Technologies

MANAGEMENT TEAM

Jim Haden
CEO
Veteran laser expert with 30 years' experience; demonstrated experience transforming advanced tech businesses

Dr Ian Mann
COO & CTO
Product development and technology commercialisation specialist with experience through-out photonics industry

Brad Siskavich
EXECUTIVE VP
More than 25 years' experience developing and commercialising new compound semiconductor and laser technologies

Samuel Samhan
CFO
Highly-credentialled finance executive with more than 20 years' experience

Stefanie Winwood
HEAD OF CORPORATE & IR
Strategic marketing and Investor Relations professional with more than 15 years' experience in high-tech and semiconductor sectors

Carol Huang
HEAD OF WAFER FAB OPERATIONS
GaN product and process development expert experienced in bringing products from conception to the market.

INDUSTRY ADVISORY BOARD – ACCELERATING TECHNICAL & COMMERCIAL ADVANCEMENT

INDUSTRY ADVISORY BOARD

Steven DenBaars

Professor DenBaars is one of the world's foremost experts in GaN laser development and commercialisation.

Co-founded **Soraa Laser Diode** and oversaw its acquisition by Kyocera Corporation for $450 million in 2021, Serves on the Board of Directors of Aeluma and SmartKem and is a Scientific Advisor to Seoul Semiconductor, the third-largest LED company globally.

Richard Craig

Dr Craig led multiple semiconductor laser companies, both venture funded start-ups and large publicly traded industry leaders .

Developed and managed the laser pump business that led to the $41B acquisition of Spectra Diode Lasers by JDS Uniphase, representing the largest tech merger to date at the time of announcement in 2000.

CONSORTIUM ADVISORS

Leverage our expert advisors supporting us at SSLEEC & CLAWS

- Request profiles added to our People page on BluGlass website, under 'Consortium Advisors'
- Add profiles to our Investor Presentation material
- Include in the Industry Advisory Board announcement to market

SSLEEC
Solid State Lighting & Energy Electronics Center

CLAWS
Commercial Leap Ahead for Wide Bandgap Semiconductors

Prof. Shuji Nakamura

Nobel Laureate, Physics

Widely recognized as pioneer in light emitters based on wide-bandgap semiconductors, Nakamura continues to focus on development of GaN thin film technology for the developments of high efficient Nitride-based LEDs and laser diodes.

Prof. John Muth

- Director CLAWS Hub
- Co-Founded NSF Engineering Research Center ASSIST
- Founded and Principal Investigator for PowerAmerica
- Served as Jefferson Science Fellow with USAID

Prof. Fred Kish

- Deputy Director CLAWS Hub
- Ex Infinera Corporation & Hewlett Packard
- Fellow of the National Academy of Inventors, Optica and IEEE, member of the National Academy of Engineering.

MARKET OVERVIEW

LASER TECHNOLOGY UNDERPINS GLOBAL MEGATRENDS

US $38B Market

Defense & Space

US$11B

Defence laser systems market by 2033

Source: Straits Research, Gartner Insights, Goldman 2024

Quantum & Sensing

US $6B

Quantum sensing market by 2030

Source: McKinsey & Company 2024

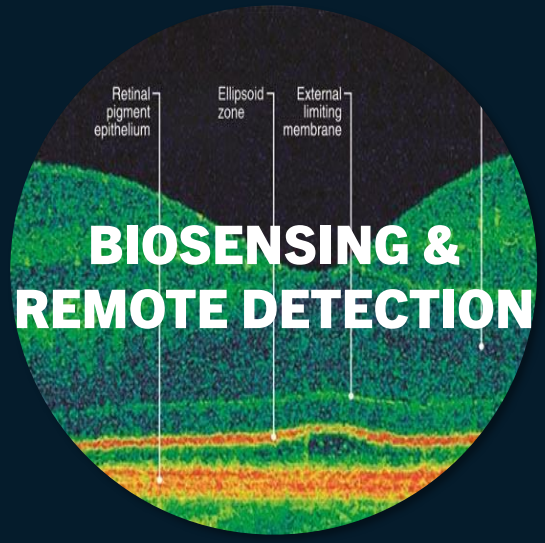
Healthcare & BioTech

$21B

Market by 2033

Source: Spherical Insights 2024, The Business Research 2024

DEFENCE LASER SYSTEMS - A US $11B OPPORTUNITY BY 2033



Source: Straits Research, Gartner Insights, Goldman 2024

QUANTUM SENSING OPPORTUNITY

The quantum sensing market is projected to experience explosive growth to reach US$1 billion by 2030 and $6 billion by just 2040, as its advantages both disrupt existing at the same time as forging new markets that rely on sensor technology, according to recent McKinsey analysis.

Quantum sensing

$1B–$6B

estimated market size by 2040

$0.7B
invested
as of Dec 2023

48
start-ups
as of Dec 2023

QUANTUM COMPUTING OPPORTUNITY

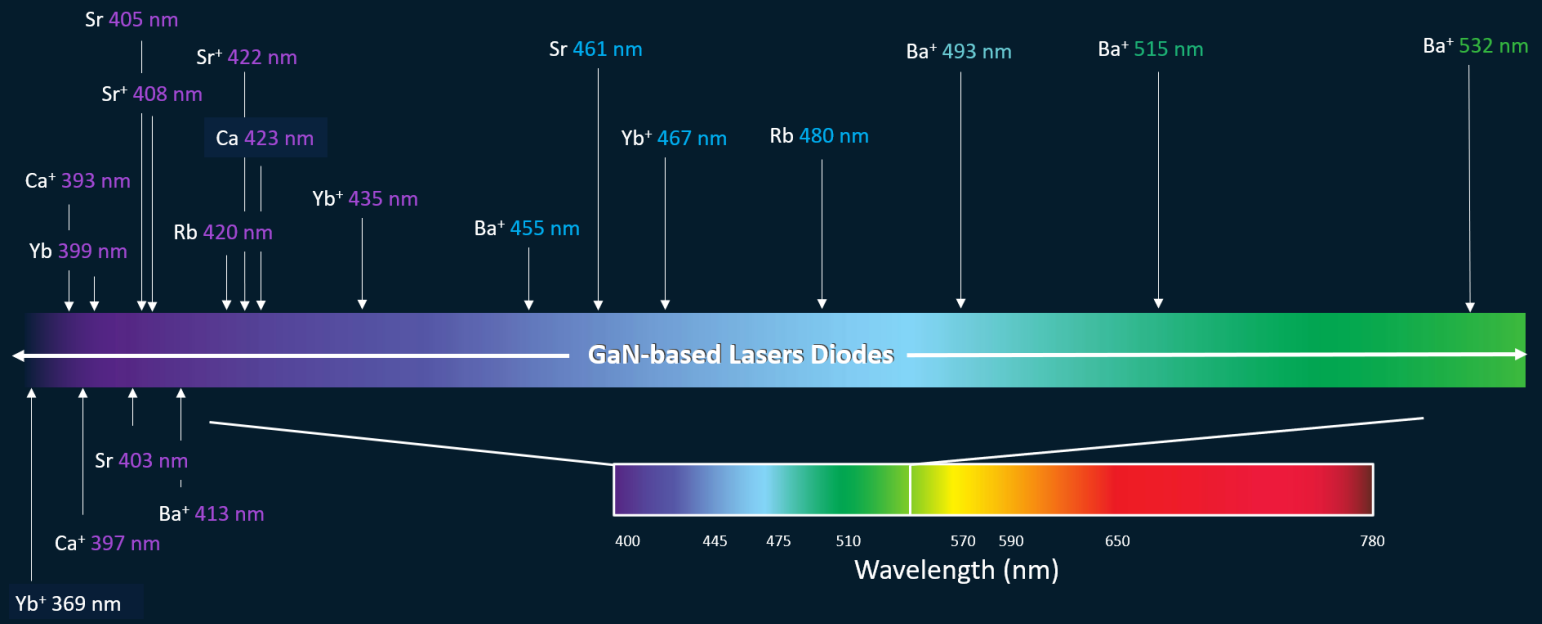
- Quantum computers hold the potential to drive remarkable progress in industry & high-tech, with companies already exploring capabilities to develop innovations such as lighter, more powerful batteries for EVs, new medicines, cryptography, and artificial intelligence.
- Visible lasers play key roles in creating Qubits (rather than ordinary bits), trapping, cooling, and decelerating atoms and ions.
- Multiple tunable lasers with multiple frequencies are needed to interact with key materials for creating and controlling qubits.

Quantum computing

$1.2B – $170B

2024 market size

Estimated market size by 2040

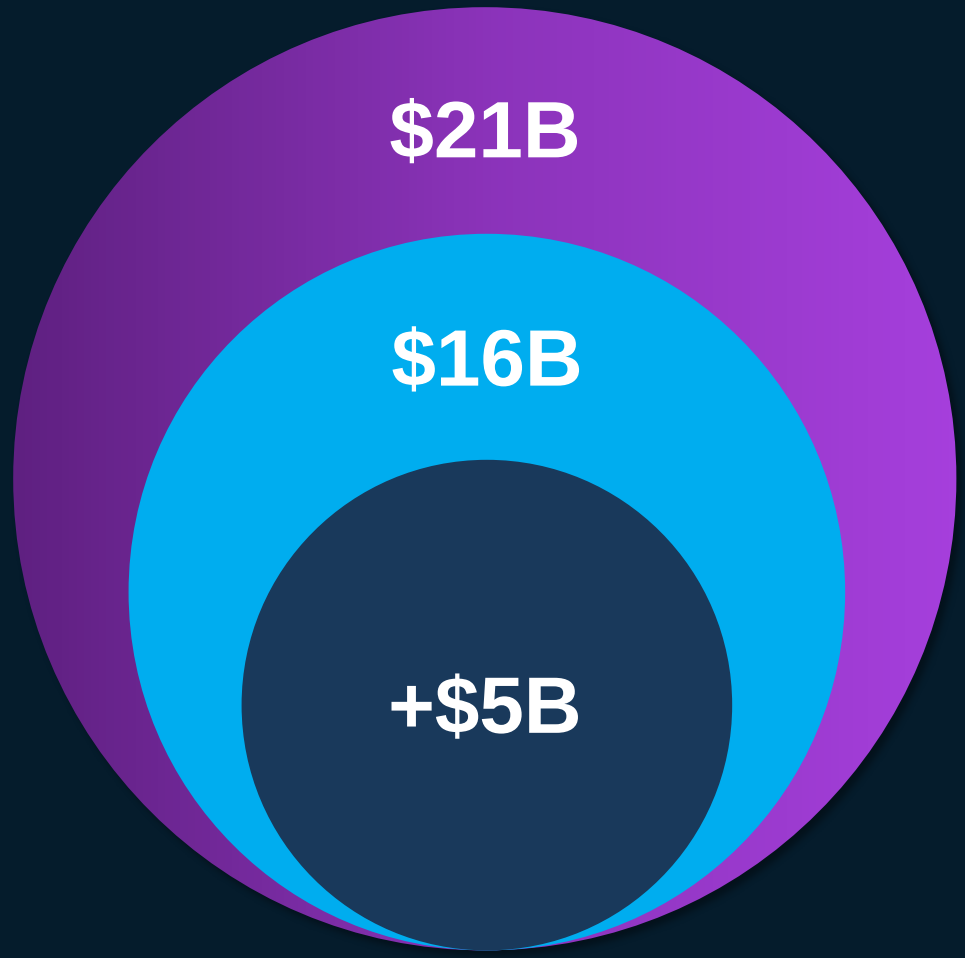


HEALTHCARE & BIOTECH OPPORTUNITY

Global medical laser systems market is expected to reach US$ 16B by 2033.

As the need for more personalised medicine increases, researchers are finding that new laser wavelengths and integrated multiwavelength laser light engines are enabling high-dimensional analysers with improved performance.

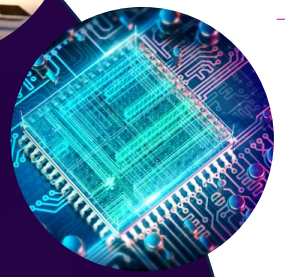
Source: Spherical Insights



KEY INDUSTRY PLAYERS BY SEGMENT

INDUSTRIAL

COHERENT · NUBURU · TRUMPF · IPG PHOTONICS · MITSUBISHI ELECTRIC · AIRBUS · TERADIODE NEXT GENERATION INDUSTRIAL LASERS · nLIGHT



QUANTUM COMPUTING & SENSING

IONQ · Q-CTRL · ADVANCED NAVIGATION · IPS Innovative Photonic Solutions · QUANTINUUM · TOPTICA PHOTONICS · Fraunhofer · Laser Quantum INNOVATIVE RELIABLE INTELLIGENT

DISPLAY (AR/VR)

Google · Panasonic · Meta · SAMSUNG · LG

BIOTECH

INTUITIVE SURGICAL · modulight · BIOLASE Advancing Dentistry · Alcon · IRIDEX

DEFENCE

DRS · DEPARTMENT OF DEFENSE · DARPA · Raytheon Technologies · NORTHROP GRUMMAN · LOCKHEED MARTIN · BOEING

COMPETITIVE LANDSCAPE

Characteristics	Pure-play GaN laser challenger	Global conglomerate and market leader	Global lighting company	Global consumer electronics company	Japanese owned white light laser company	Taiwanese laser company
Pure-play GaN laser company	●				●	
Full-suite GaN manufacturing capability	●	●	●	●	●	●
Mature product portfolio		●	●	◐		◐
Market leadership	GaN DFB lasers, MOPAs, SOAs	High-power MM lasers	LED/GaN lasers	Blue-ray	High-power white light	
Manufacturing agility and flexibility	●					
Custom development and fast prototyping	●				◐	
Flexible form factors	●				◐	
Custom integration	●				◐	
RPCVD & AAG Tunnel Junction Technology	●					
Novel GaN architectures; DFB, Gain Chips	●	●				
US DoD/ AUKUS Defence Contract Eligibility	●				◐	

MICROELECTRONICS COMMONS ACCELERATES BLG's COMMERCIAL DISCUSSIONS

BLG IS A COMMERCIAL PARTNER IN CLAWS

- US Department of Defense allocated $2B to 8 regional Hubs in ME Commons
- CLAWS Hub awarded US $63M for core development work in FY24 & FY25

BLG AWARDED AU$5.5M

- BluGlass awarded A$2.6 & $2.9M for core development contracts across FY24 & FY25.
- Contracts for FY26-FY28 TBA

Five-year US Department of Defense (DoD) program established to accelerate the Lab-to-Fab transition & produce next-gen microchips at scale

Program helps unlock government, prime, & commercial relationships with key US players across next gen critical defence capabilities, dual-use, aerospace, sensing, & quantum applications

CLAWS HUB LEAD & MEMBERS

LEAD

NC STATE UNIVERSITY

MEMBERS

ADROIT MATERIALS

BLUGLASS

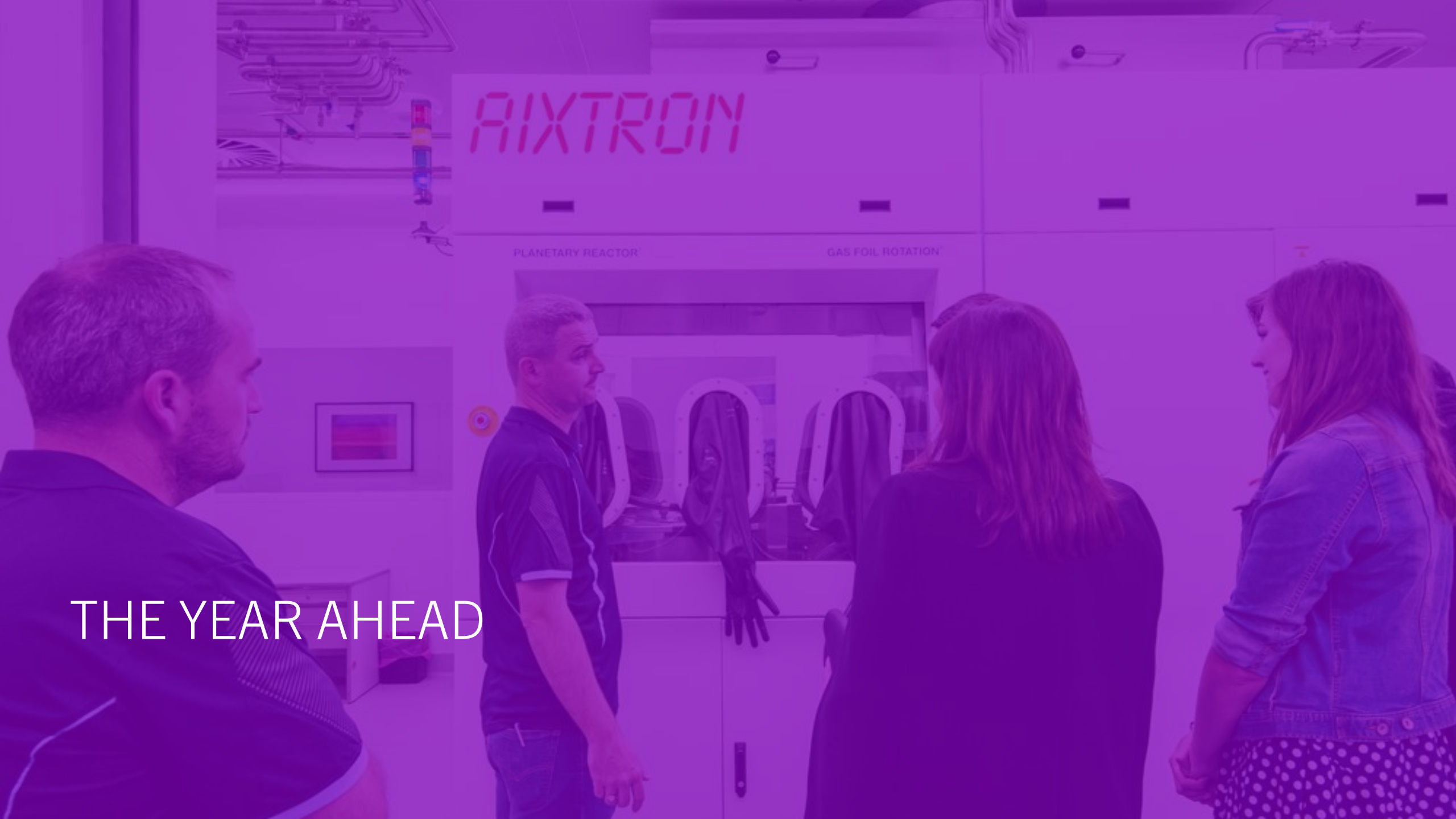
COHERENT

GE

kyma technologies

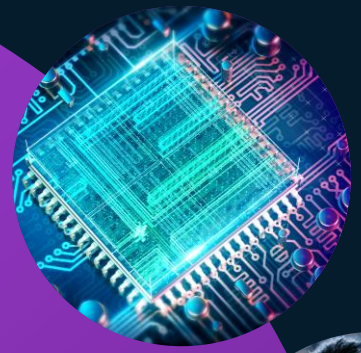
North Carolina Agricultural and Technical State University

MACOM



THE YEAR AHEAD

WORKING WITH CUSTOMERS ACROSS OUR TARGET VERTICALS



QUANTUM & SCIENTIFIC

DEFENCE/ ENERGY & R&D

BIOTECH & MEDTECH

INDUSTRIAL

Working with diverse customers

BluGlass' customers include leading OEMs, national labs and research organisations, to disruptive start-ups across our target market verticals

Solving customer challenges

BluGlass is helping customer's develop novel applications through rapid prototyping and custom development inc: custom wavelengths, novel designs, custom integrations, and flexible form-factors

Growing our project & revenue pipeline

BluGlass lasers are being qualified in customer applications to validate performance and lifetime

Validated our differentiated product offering

Our customers are purchasing both off-the-shelf standard products and highly customized products in flexible form factors, validating our flexible manufacturing offering and full-suite capability

PROJECT-TO-PRODUCT REVENUE PIPELINE & OPPORTUNITY

BluGlass' project pipeline is gaining significant momentum with diverse opportunities in negotiation in the pipeline

Growing pipeline of opportunity

Initial evaluation to advanced negotiations with diverse customers and partners

Proposals & tenders:

Form key industry partnerships with defense primes, government agencies, OEMs and large commercial manufacturers, & well-funded innovative start-ups

Contract negotiations

Establish leadership and develop novel capabilities in high-growth markets: quantum, defence, aviation, scientific, and biomedical

Follow-on large-scale revenues

Securing long-term, large –scale revenue generating projects (e.g. ME Commons) and entering follow-on commercial manufacturing contracts

* The project pipeline includes opportunities at various stages of engagement. Negotiations with OEMs, prime contractors, and government agencies can take many months or years to mature, and not all engagements will result in revenue-generating contracts.

KEY CATALYSTS & MILESTONES

Enter development contracts

Convert opportunities in pipeline currently worth US$90-100m to revenue generating projects & contract wins with primes, OEMs, government agencies, & sub-primes

Renew existing annual contracts

Enter years 3-5 of Microelectronics Commons (CLAWS Hub) contract

Commence Phase 2 of JDA with commercial development partner

Form strategic partnerships with top tier customers

Establish relationships with key government agencies, defence primes, OEMs, and market leaders

Advance technical capabilities

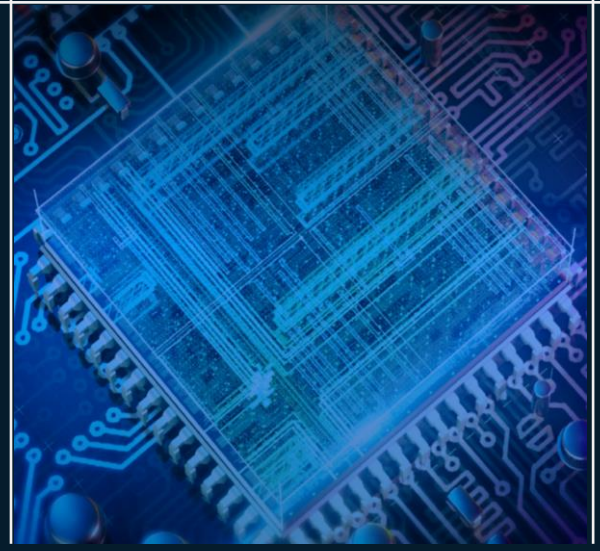
Install state-of-the-art equipment to enhance manufacturing & operations for high-fidelity product lines (quantum, aerospace, defence)

Launch new high ASP products

Launch advanced capabilities & high-fidelity product lines (DFBs, gain-chips)

Secure IP & competitive advantages

Key patents granted securing leadership in precision & high- fidelity applications



Build revenue scale with follow-on-contracts

Development contracts are intended to lead to large, long term master supply agreements with development partners

BUILDING SIGNIFICANT BUSINESS MOMENTUM

Gaining Business Momentum

A$6M+

In recent contract wins with key partners across key market verticals

Key Partnerships

Including the

US DoD

As part of the Microelectronics Commons, CLAWS Hub, inc. GE, Coherent, MACOM, NSCU

Significant Growth

133%

133% three-year revenue CAGR.

A$4.6m revenue in FY24, with record revenue expected in CY25.

Growing Pipeline of Opportunity

$90-100m

of revenue opportunity across 26 Key Projects

BluGlass' project pipeline is growing with diverse opportunities

CAPITAL RAISE

INVESTMENT OPPORTUNITY

BluGlass is undertaking a capital raising of up to approximately A$8.3m via a Placement and Share Purchase Plan

Placement	• Single tranche non-underwritten placement to sophisticated, professional and institutional investors to raise up to approximately ~$2.3m (before costs) (Placement) • Approximately 180.9 million new, fully paid ordinary BluGlass shares (New Shares) to be issued under the Placement, representing approximately 9.0% of existing ordinary shares on issue, utilising the Company's available placement capacity under ASX Listing Rules 7.1 and 7.1A

Offer Price	• Placement Offer Price of $0.013 per New Share represents a:
	  • 18.75% discount to the last close of $0.016 on 28 April 2025
	  • 25.5% discount to the 10-day volume-weighted average price (VWAP) of $0.0174

Share Purchase Plan	• The Company will offer eligible shareholders the opportunity to participate in a Share Purchase Plan (SPP) and apply for up to $100,000 of New Shares, to raise an additional $6.0 million and will be offered at the lower of:
	  • $0.013 per New Share, being the price paid under the Placement; and
	  • 2.5% discount to the VWAP of the Company's shares traded on the ASX during the five trading days up to the closing date of the SPP, rounded to the nearest half cent
	• Record date for determining eligibility for the SPP is 7:00pm on Wednesday, 30 April 2025
	• Further details in relation to the SPP, including the scale-back policy, will be provided to eligible shareholders in a transaction-specific prospectus.
	• Issue of SPP shares are subject to shareholder approval at an extraordinary general meeting of the Company to be held on or around Monday, 9 June 2025.
	• The Company reserves the right to accept over subscriptions under the SPP up to a total of $3m subject to ASX Listing Rules and Corporations Act 2001 (Cth).

Attaching Options	• Every one (1) New Share under the Placement and SPP will receive one (1) unlisted attaching option (Attaching Option). Attaching options will be exercisable at A$0.013 and have an expiry date on the earlier of: 31 May 2026; and the date being 30 days from the date on which the Company announces a contract win from a Tier 1 company for a total contract value of > $3m (if at all). • Upon exercise, every one (1) Attaching Options will receive one (1) piggyback option, which is exercisable at A$0.019 and an expiry date of 31 May 2028. It is intended that the Piggyback Options will be listed, subject to ASX spread requirements. • Attaching Options are subject to shareholder approval at an extraordinary general meeting of the Company to be held on or around 9 June 2025.
Use of Proceeds	• Offer proceeds to be applied towards servicing new and existing development contracts, scaling product delivery, capital expenditure for high-fidelity product lines, general working capital and cost of the offer • Pro Forma cash position as at 31 March 2025 of $7.2 m (excluding costs of the offer)
Lead Manager, and Bookrunner	• Bell Potter Securities Limited is acting as Lead Manager and Bookrunner to the Placement & SPP
Ranking	• New Shares issued under the Placement will rank pari-passu with existing fully paid ordinary shares on issue

TIMETABLE:
Capital Raising Offer Timetable

Key Dates	
SPP record date	Wednesday, 30 April 2025
Announcement of Capital Raising	Thursday, 1 May 2025
Settlement of Placement	Wednesday, 7 May 2025
Allotment and normal trading of Placement Shares on the ASX	Thursday, 8 May 2025
SPP Opens	Thursday, 8 May 2025
EGM to approve issue of SPP shares, SPP options and Placement options	On or around Monday, 9 June 2025
SPP Closes	Tuesday, 10 June 2025
Allotment of SPP shares, SPP options and Placement attaching options (subject to shareholder approval)	On or around Thursday, 12 June 2025

The above timetable is indicative only and subject to change without notice

KEY RISKS

Risk	Risk Description
Loss of key management personnel	BluGlass' ability to effectively execute its business strategy depends upon the performance and expertise of its key management personnel. Any loss of key management personnel, any delay in the replacement of any key management personnel, or any extended period where key management personnel are unable to work will adversely affect BluGlass' operations and future performance.
Development and commercialisation of technologies	The success of BluGlass will be impacted by the successful development and commercialisation of its technologies. For instance, BluGlass' RPCVD technology may fail to meet competitive specifications. Should the development not be completed in accordance with BluGlass' specifications or should the results of further testing indicate technology performance is below market requirements, BluGlass will have to expend additional time and resources to rectify any outstanding issues which will delay the commercialisation of the company's advanced roadmaps. BluGlass may also experience difficulty in raising capital if such technology-related milestones are not achieved.
Product liability and uninsured risks	BluGlass is exposed to potential product liability risks, inherent in the research and development, manufacturing, marketing and use of its products or products. Further, BluGlass is exposed to the risk of catastrophic loss to necessary laboratory equipment, computer equipment or other facilities, which would have a serious impact on BluGlass' operations.
Intellectual property	BluGlass relies upon a combination of patents, know-how, trade secret protection and confidentiality agreements to protect its technologies. Legal standards relating to the validity, enforceability and scope of protection of intellectual property rights are uncertain. Effective patent, trade mark, copyright and trade secret protection may not be available to BluGlass in every country in which its products may be sold. Accordingly, despite its efforts, BluGlass may not be able to prevent third parties from infringing upon or misappropriating its intellectual property.
Competition	The industry in which BluGlass is involved is subject to increasing domestic and global competition which is fast-paced and fast-changing. For instance, new technologies could result in BluGlass not being differentiated to other similar offerings. The size and financial strength of some of BluGlass' competitors may make it difficult for it to maintain a competitive position in the technology market. In particular, BluGlass' ability to acquire additional technology interests could be adversely affected if it is unable to respond effectively and/or in a timely manner to the strategies and actions of competitors and potential competitors or the entry of new competitors into the market. This may in turn impede the financial condition and rate of growth of BluGlass.

INTERNATIONAL OFFER RESTRICTIONS

New Zealand	This document has not been registered, filed with or approved by any New Zealand regulatory authority under the Financial Markets Conduct Act 2013 (the "FMC Act"). The New Shares are not being offered or sold in New Zealand (or allotted with a view to being offered for sale in New Zealand) other than to a person who: • is an investment business within the meaning of clause 37 of Schedule 1 of the FMC Act; • meets the investment activity criteria specified in clause 38 of Schedule 1 of the FMC Act; • is large within the meaning of clause 39 of Schedule 1 of the FMC Act; • is a government agency within the meaning of clause 40 of Schedule 1 of the FMC Act; or • in other circumstances where there is no contravention of the disclosure requirements of the FMC Act.
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THANK-YOU & QUESTIONS

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APPENDIX

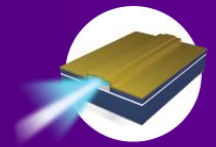
WHAT WE DO: OFFERING THE WORLD'S EASIEST TO USE GaN LASER LIGHT

BluGlass' vertically integrated laser offering has been designed to meet the market and solve our customers biggest challenges

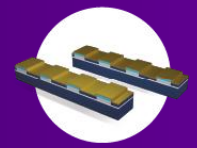
- Plug & Play & Custom Lasers
- Offering underserved and custom wavelengths from 400nm-525nm
- Single-mode and multi-mode products
- Enhanced designs and novel device architectures for higher-power, higher-brightness lasers
- Vertically integrated from design and epitaxy to packaging and testing

Flexible form factors will revolutionize how our customer use GaN laser light

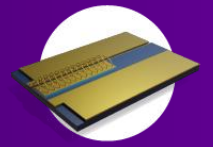
BluGlass' Form Factor Offerings



Single emitters/Photonic Integrated Circuits (PICs)



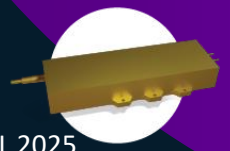
Laser diode bars



Chips-on-submounts (CoS)

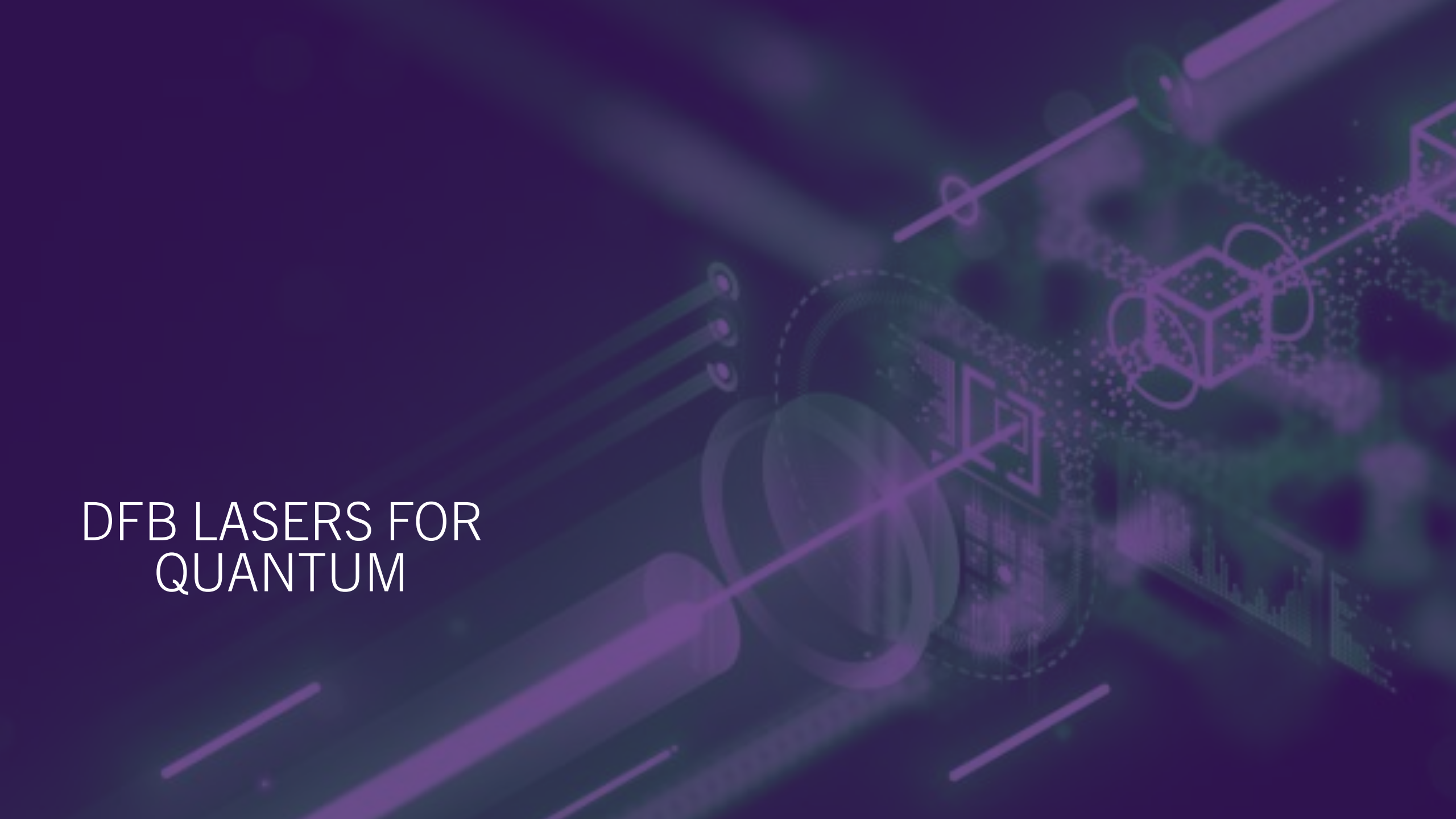
TO Cans (various sizings)

C-Mounts, F-Mounts, Butterfly Pins

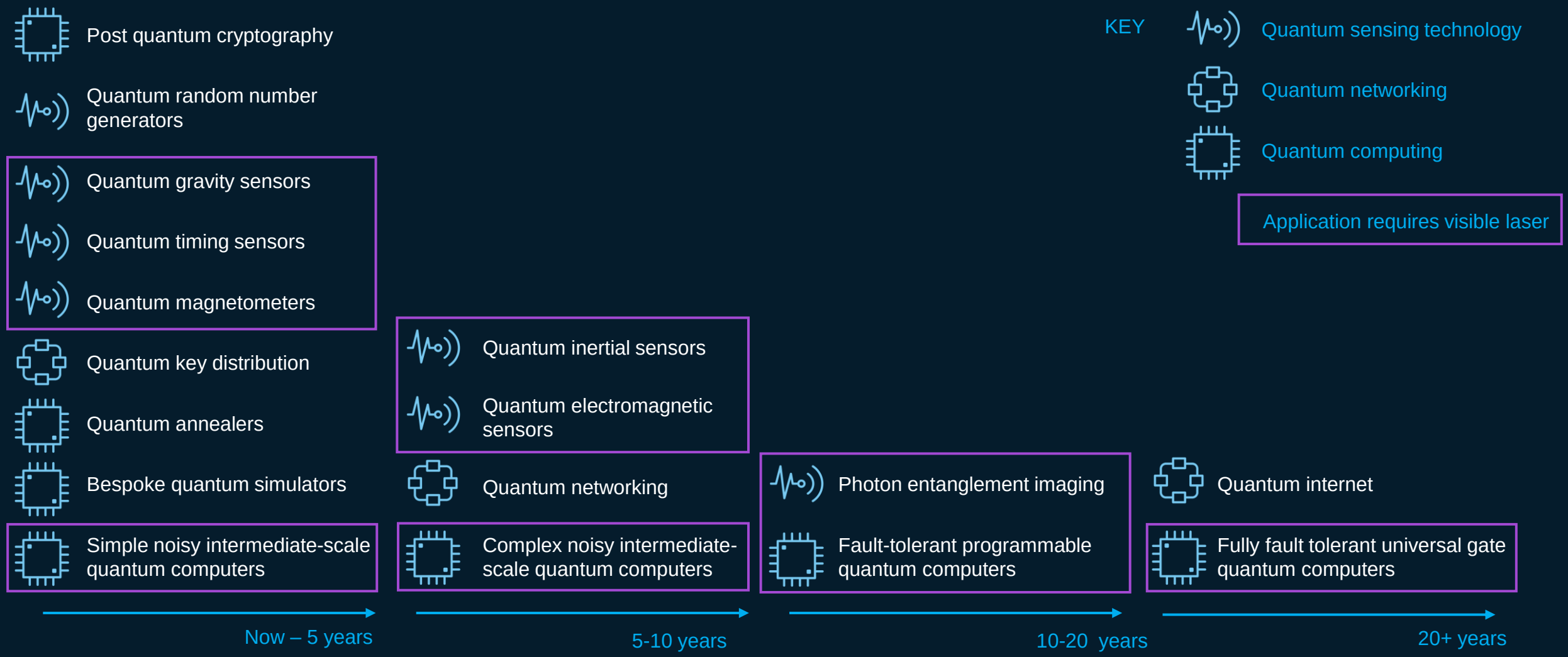


Multi-chip Modules/Arrays

DFB LASERS FOR QUANTUM

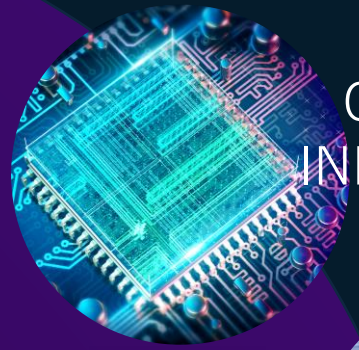


ESTIMATED HORIZON OF QUANTUM TECHNOLOGIES – QUANTUM SENSING IS HERE



Source: National Quantum Strategy, industry.gov.au/quantum - May 2023

GaN DFB LASER APPLICATIONS



QUANTUM INFORMATION

BIO-PHOTONICS

RANGING & NAVIGATION

QUANTUM SENSING

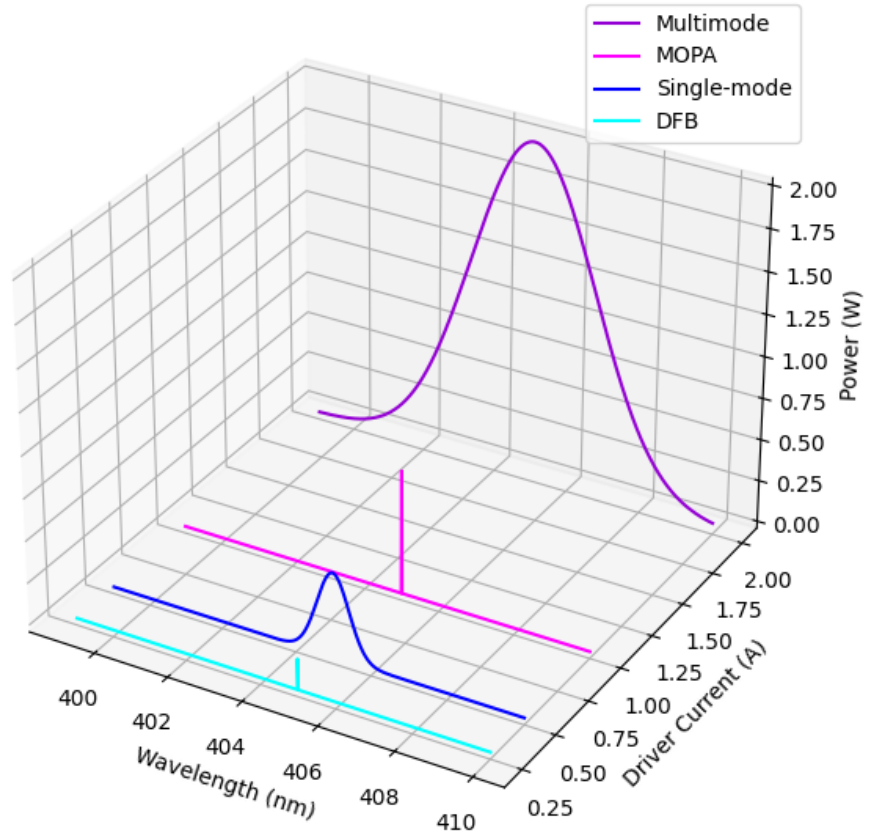
GaN DFB Benefits

- Precise wavelength, control, and tuning
- Ultra-narrow linewidth
- High spectral purity
- Low relative intensity noise
- Enhanced stability
- Improved measurement and sensing accuracy using atomic level interactions

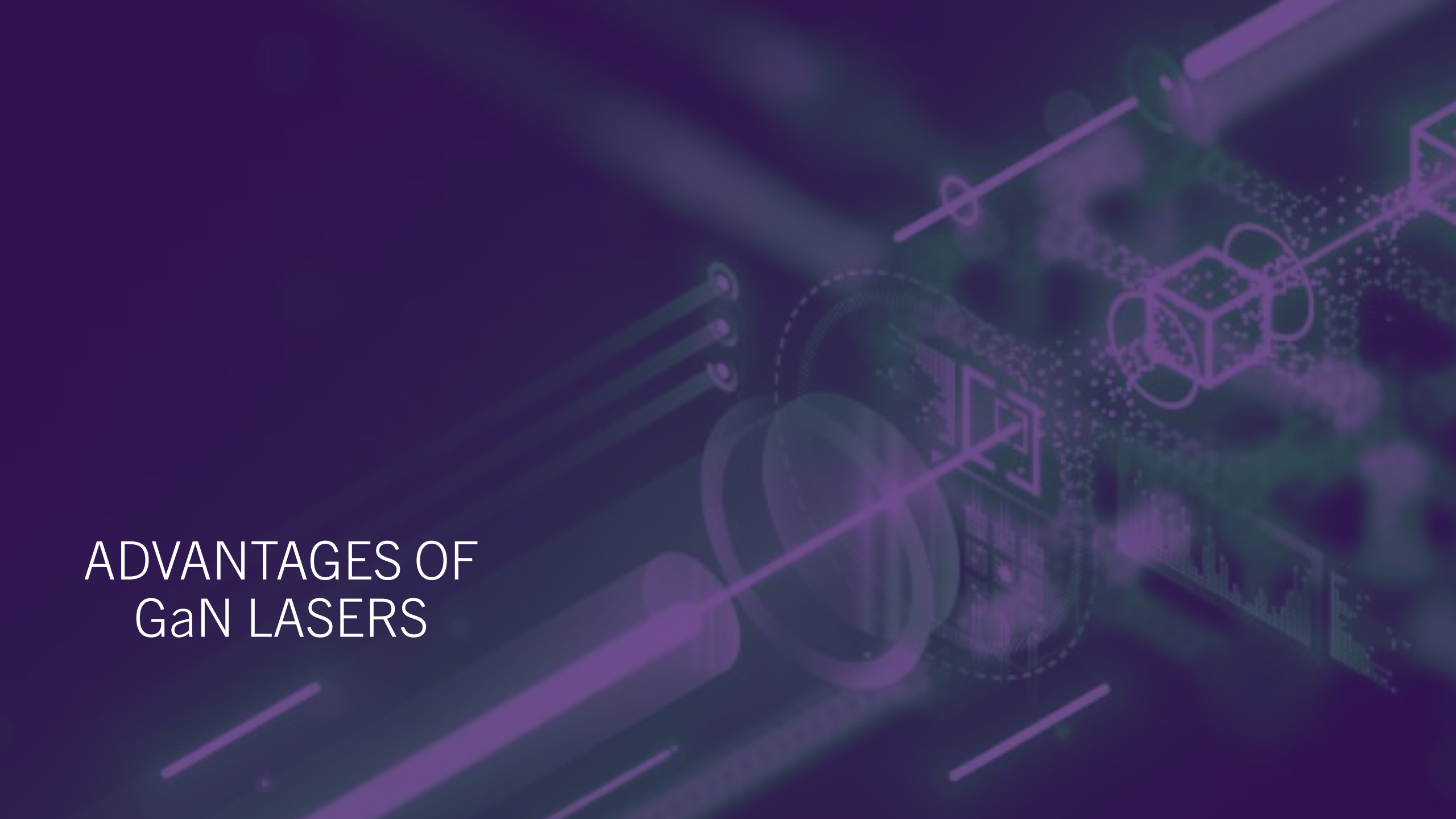
WHAT IS A DFB LASER

	Multi-Mode Laser	Single-mode (SM) laser	DFB Laser	SM + SOA	MOPA
Features	High-power, high-brightness broad light	Lower-power, bright light in single phase, with narrow linewidth	Ultra-precise near single frequency light	Amplifies the benefits (power) of the single-mode device in two separate chips (improved signal-to-noise)	Amplifies the benefits of SM & DFB lasers in higher-relative power in one monolithic chip (improved signal-to-noise compact design – lower cost)
Advantages	High absorption in key metals	Spectral purity, precision	Precise wavelength control and ultra narrow linewidth for atomic, or cellular, scale interaction		
Applications	Industrial wielding, materials processing, 3D printing, advanced manufacturing	DNA sequencing, bio-medical applications, sensing, AR/VR	Quantum sensing, bio-sensing, quantum computing, quantum communications	Advanced quantum, aviation, defence applications	Advanced quantum, aviation, defence applications

Multi-Mode, Single-Mode, & DFB Lasers



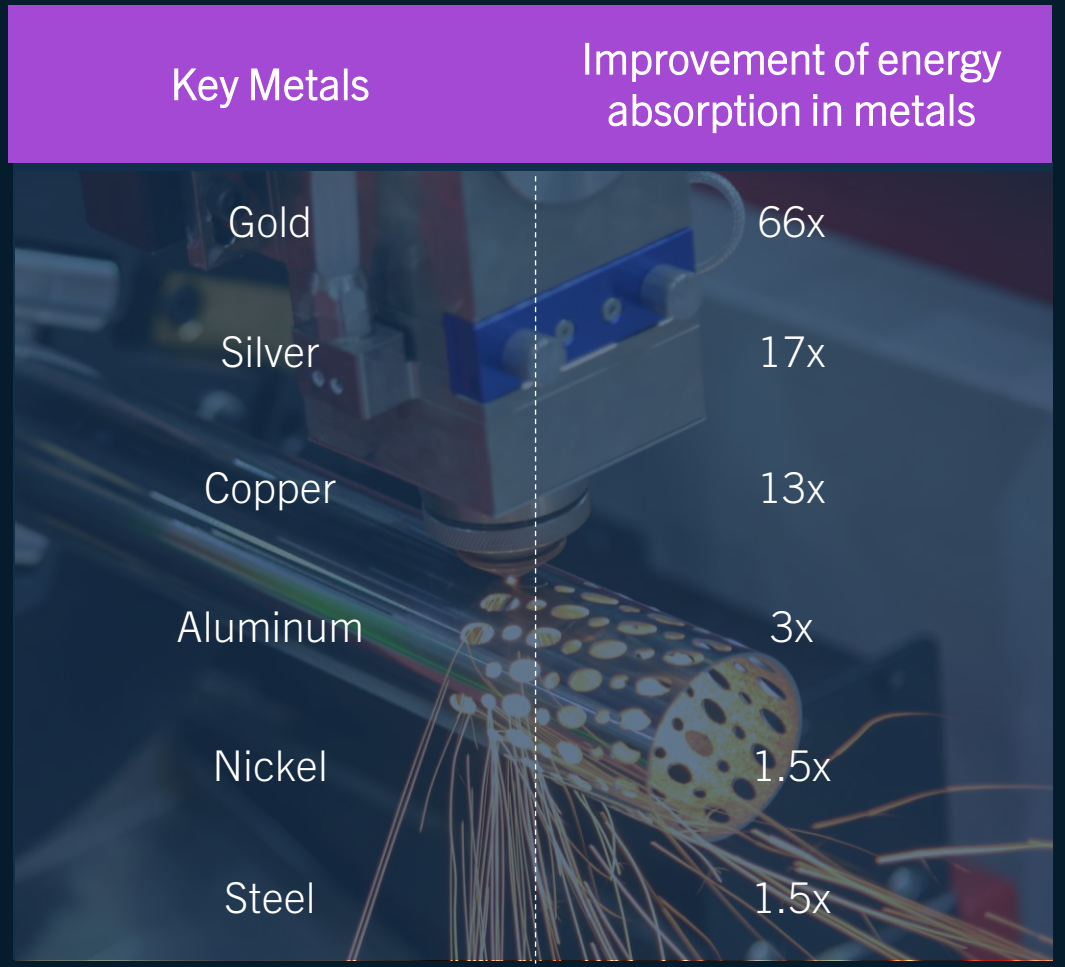
ADVANTAGES OF GaN LASERS



MARKET DRIVERS - THE ADVANTAGES OF GaN LASER DIODES

Visible GaN visible and UV laser diodes have many advantages over traditional infrared lasers

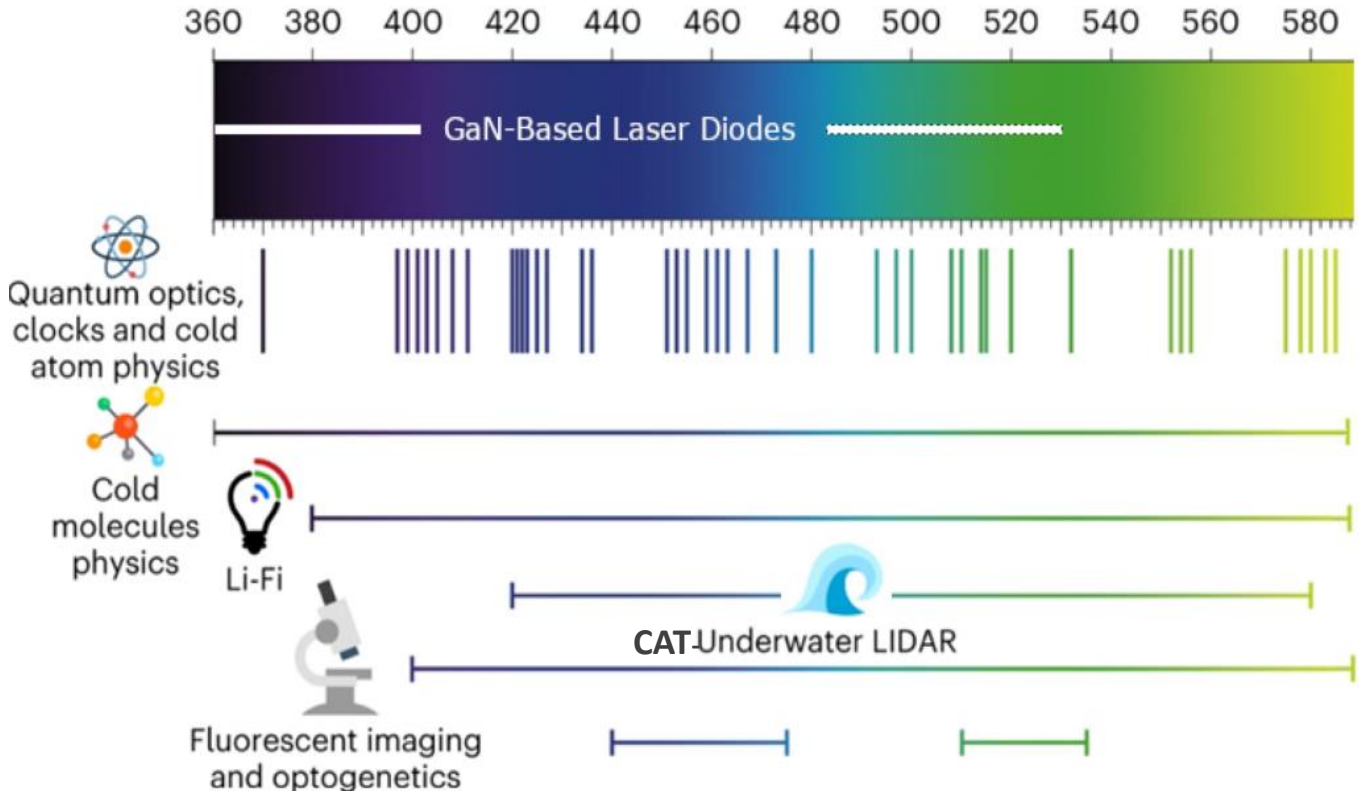
- GaN light interacts favorably with quantum and organic materials (viruses, bacteria, cancer cells), and water/atmosphere
- Cleaner, faster welding, 3D-printing, and materials processing
- Tighter beam focus and improved efficiency
- Higher precision manufacturing, enabling increasingly advanced technology applications
- Visible light has higher absorption in key industrial metals



Source: NASA, 1969

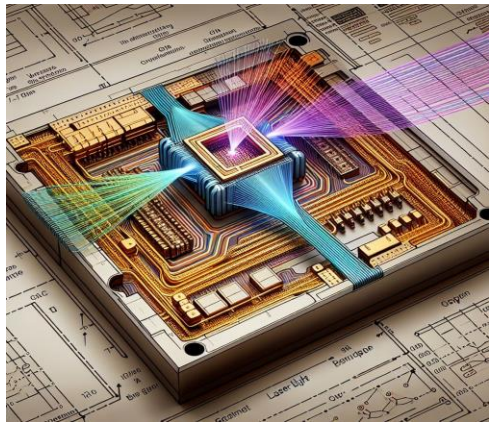
DEFENCE & AEROSPACE - $11B BY 2033

GaN Wavelengths for Defence & Aerospace



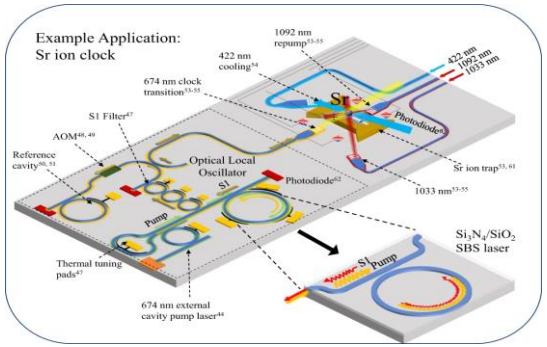
M. Corato-Zanarella et al., *Nat. Photon.*, ***17,*** *157-164* (2023)

Quantum Computing, Cryptography & AI



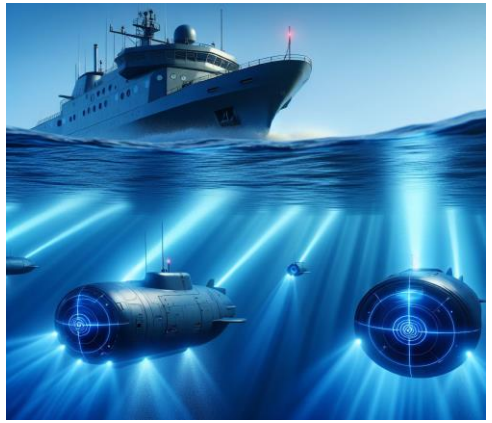
LiDAR detecting Clear Air Turbulence (CAT)

Quantum Clocks & Quantum Sensing



Chauhan, N., et al. *Nat Commun* **12**, 4685 (2021)

Underwater LiDAR & Comms

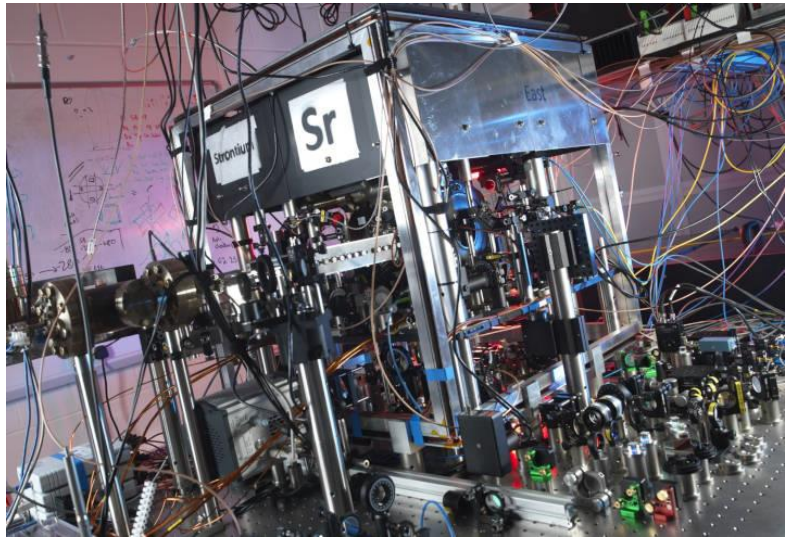


QUANTUM: GaN LASERS PRODUCE ESSENTIAL HIGH-ENERGY LIGHT

Scale up in volume, down in size, increase fault-tolerance

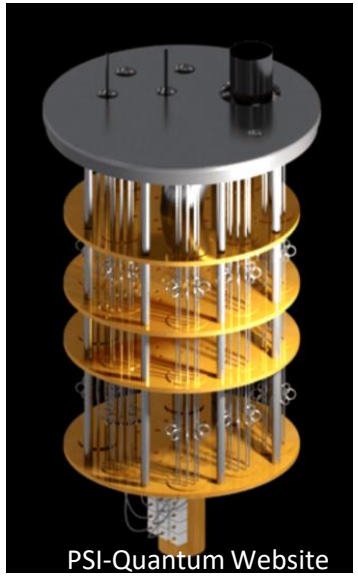
GaN photonics promise improved fault tolerance and error-corrected quantum computers employing low-noise technology

Benchtop Scale 8'x10'



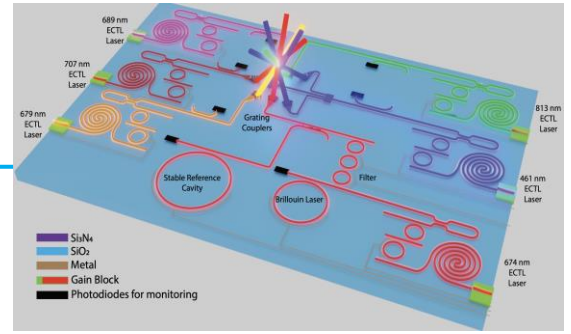
NPL Strontium Lattice Clock (2023)

Large Current Scale



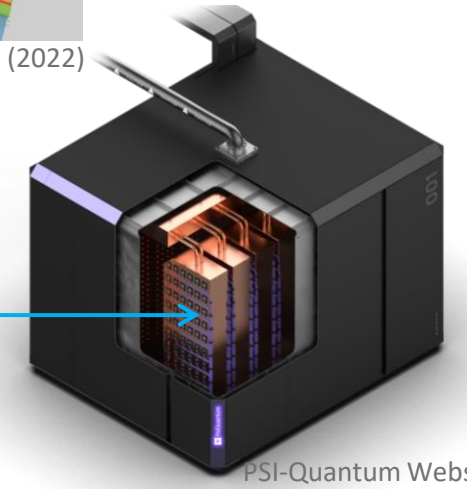
Too error-prone to solve commercially valuable problems

Chip Scale 4 x 6 mm

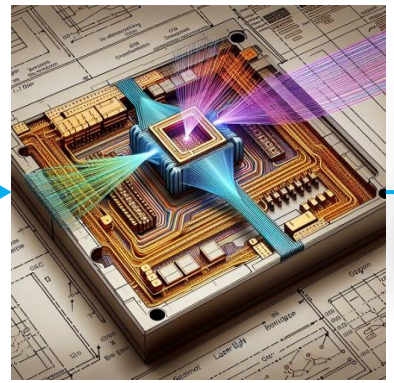


N. Chauhan et al., *Opt. Exp.*, **30** 5 (2022)

Future Reduced Scale

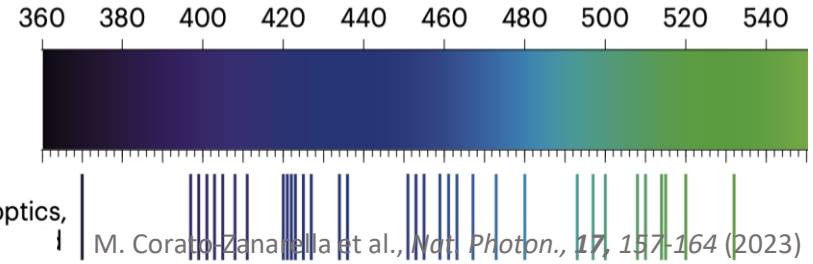


PC-Board Size



Rack Mount Computer Size

GaN Wavelengths for Quantum

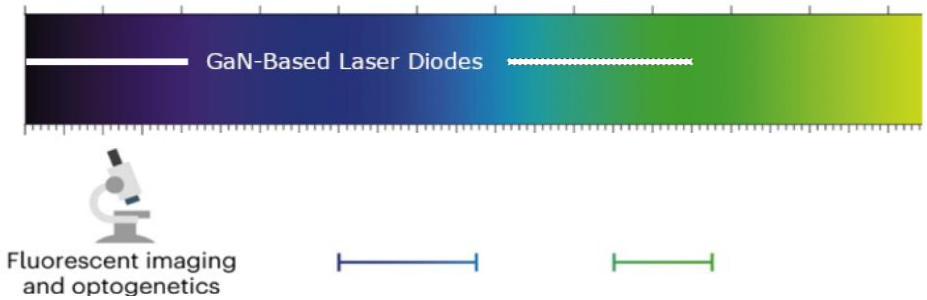


M. Corato-Zanarella et al., *Nat. Photon.*, *17*, 157-164 (2023)

BIO-MED & BIO-TECH

- Advances in robotic surgery
- DNA sequencing
- Cancer detection and identification
- Blood sensing
- Wound healing

GaN Wavelengths for bio-med & bio-tech



STERILISATION

UV light at wavelengths between 200 and 280 nanometers has been found to have a high rate of disinfection efficacy (>99.9%)

Frequency doubling of Violet (400 nm) to Green (530 nm) GaN Laser diodes yields UV-C 200 to 265 nm

- UV-C light penetrates the cell walls of microorganisms and damages their DNA and RNA, preventing them from replicating
- **Broad-Spectrum Efficacy:** UV-C light is effective against various pathogens, including antibiotic-resistant bacteria and viruses
- The range of UV-C light considered safer for humans is specifically far-UVC light (207 to 222nm)

THANK-YOU & QUESTIONS

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