



LIGHTWAVE LOGIC®

Faster by Design

Management update:

26th May 2022

Michael Lebby
CEO, Lightwave Logic



The information in this presentation may contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. You can identify these statements by use of the words "may," "will," "should," "plans," "explores," "expects," "anticipates," "continue," "estimate," "project," "intend," and similar expressions. Forward-looking statements involve risks and uncertainties that could cause actual results to differ materially from those projected or anticipated. These risks and uncertainties include, but are not limited to, general economic and business conditions, effects of continued geopolitical unrest and regional conflicts, competition, changes in technology and methods of marketing, delays in completing various engineering and manufacturing programs, changes in customer order patterns, changes in product mix, continued success in technological advances and delivering technological innovations, shortages in components, production delays due to performance quality issues with outsourced components, and various other factors beyond the Company's control.

A server room with rows of black server racks. The scene is illuminated by vibrant, glowing light trails in shades of blue, orange, and purple that swirl and streak across the floor and racks, creating a sense of dynamic energy and data flow. The text "We are excited..." is centered in the foreground in a clean, white, sans-serif font.

We are excited...

Ringling the Bell at NASDAQ (10th Sept 2021)

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Organic up-list...as promised in 2017...

A server room with rows of black server racks. The scene is illuminated by vibrant, glowing light trails in shades of blue, orange, and purple that swirl and streak across the floor and racks, creating a sense of dynamic energy and data flow. The text "4 takeaways..." is centered in the foreground in a white, sans-serif font.

4 takeaways...

- We have made unparalleled progress in the last 12 months...
- Our technology is competitively superior and unique...
- We are positioned to have polymers become ubiquitous...
- We have the resources and plans in place to succeed...

A server room with rows of black server racks. The room is dimly lit, with a grid ceiling. In the foreground, there are several glowing, curved light trails in shades of blue, orange, and purple, suggesting data flow or network activity. The word "Outline" is centered in the middle of the image in a large, white, sans-serif font.

Outline



- What we do...
- Market dynamics
- Target markets
- Unique core competences
- Business strategy
- IR & Leadership
- Summary

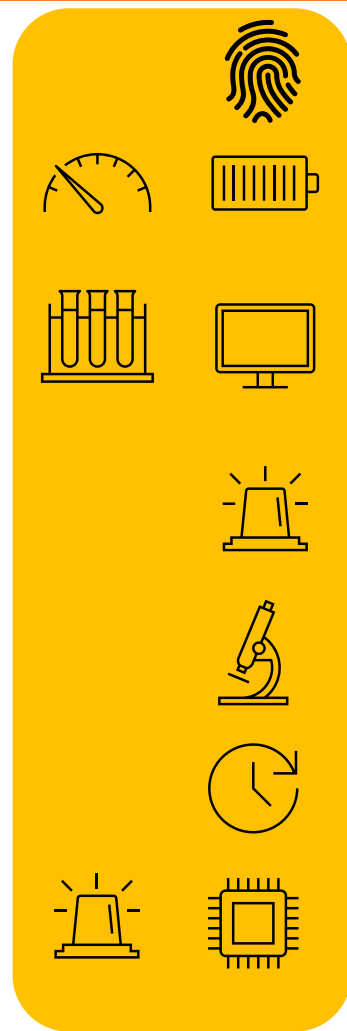
A server room with rows of black server racks. The scene is illuminated by vibrant, glowing light trails in shades of blue, orange, and purple that swirl and flow through the aisle, creating a sense of dynamic energy and data movement. The text "What we do..." is centered in the foreground in a clean, white, sans-serif font.

What we do...



We solve the problem...for decades...

- We create our own materials that are unique
- Our materials switch light very fast
 - (much faster than Liquid Crystals in displays) → ideal for a faster, lower power internet
- Our materials are polymers
 - (like OLEDs – Organic LEDs used for TVs where their polymers generate light: ours switch light)
- Our polymer materials are used in modulators
 - these are devices that switch light very fast and at very low power.
- Our modulators are very small
 - so small that they fit easily into pluggable transceivers
- Polymer modulators have *transformational* performance head-room *for decades!*
- We can integrate other devices with our polymer modulators
 - adding to existing silicon photonics as well as multi-channel solutions for higher aggregate speeds



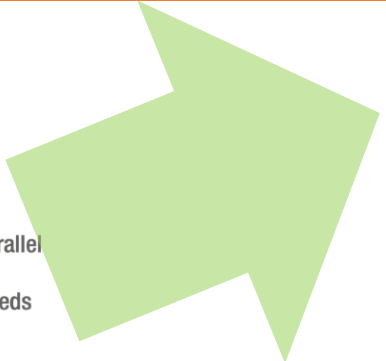
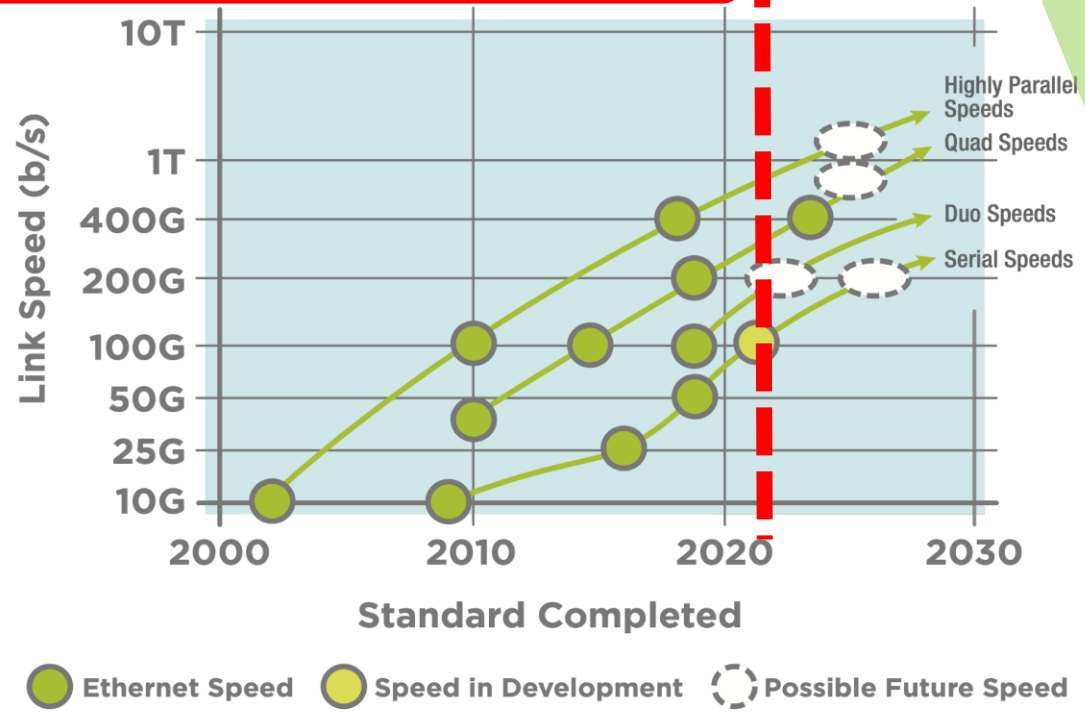
Polymer technology extends speeds, reduces power consumption...for decades...

A server room with rows of black server racks. The scene is illuminated by vibrant, glowing light trails in shades of blue, orange, and purple that swirl and flow through the aisle, creating a sense of dynamic energy and data movement. The text "Market dynamics" is centered in the foreground in a bold, white, sans-serif font.

Market dynamics

Reaching higher Tx speeds: Tbps and beyond... LIGHTWAVE

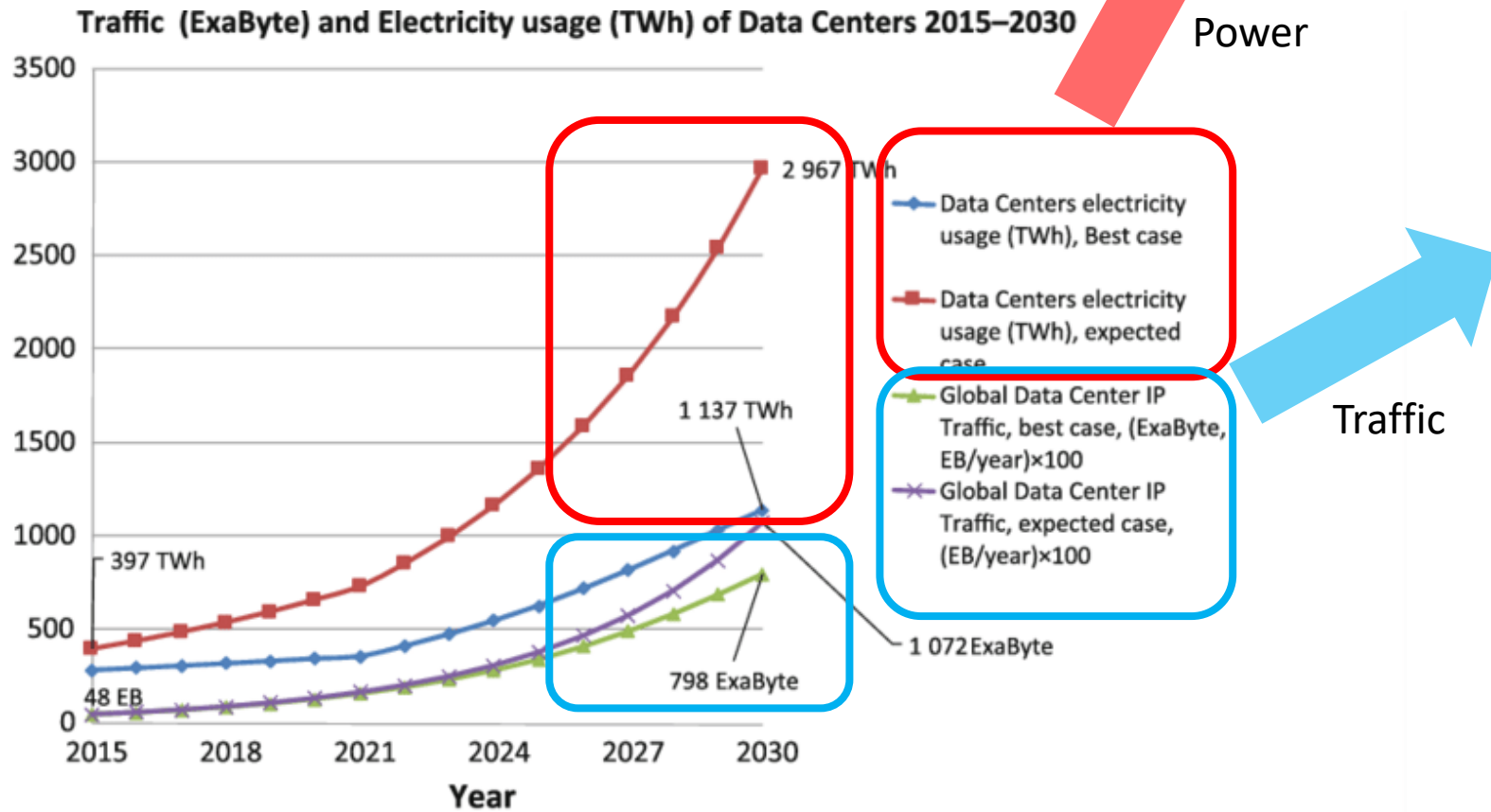
PATH TO SINGLE LANE



Single lane...have to have faster optics...

...Yet Power Consumption Spiraling Up

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Major challenge for DCs and service providers

Power is growing exponentially with increased traffic levels...it is the Achilles Heel...



ARISTA

▶ Cloud Network Bandwidth and Power

Cloud Bandwidth growing 50-60%/year

Network Power/Bit declining 25-30%/year

Metrics are now being taken very seriously...

Growing bandwidth brings higher power → power needs to be mitigated as speeds increase...

A server room with rows of black server racks. The room is dimly lit, with a grid ceiling. Overlaid on the scene are vibrant, glowing light trails in shades of blue, orange, and purple, creating a sense of motion and data flow. The text "Target markets" is centered in a bold, white, sans-serif font.

Target markets



Our initial target markets: fiber communications

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Photonics applications	Photonics components market 2030*	Optical Transceivers * TAM (2022)	Optical Transceivers * TAM (2030)	Partner type	Opportunity for Integrated Photonics (PICs) (Polymer, SiPh, InP)
Fiber comms	~\$60-80B	\$7B	~\$40-60B	Foundry, OEM/CM (TxRx)	Existing/very strong growth
HPC/compute/AI	~\$10-20B	\$1B	~\$10-15B	Foundry, OEM/CM (TxRx)	Existing/very strong growth
DCI/datacenter	~\$20-30B	\$9B	~\$20-30B	Foundry, OEM/CM (TxRx)	Existing/strong growth
5G systems/backhaul/RF	~\$5-10B	~\$1-2B	~\$4-8B	Foundry, OEM/CM (TxRx)	Existing/strong growth
Display/project	~\$10-20B	<\$1B	~\$5-15B	Foundry, OEM/CM (panel)	High-volume/strong forecast
Automotive (LIDAR)	~\$30-50B	~\$1-2B	~\$20-30B	Foundry, OEM/CM (LIDAR)	High-volume & very strong forecast
Optical sensing/3D	~\$4-10B	~\$1-2B	~\$2-5B	Foundry, OEM/CM (sensor)	High-volume & solid forecast
Bio-photonic sensing	~\$2-5B	<\$1B	~\$2-3B	Foundry, OEM/CM	Strong forecast
Medical	~\$5-10B	<\$1B	~\$5-8B	Foundry, OEM/CM	Strong forecast
Instrumentation	~\$2-3B	<\$1B	~\$1-2B	Foundry, OEM/CM	Strong forecast

Sources: *Lightwave Logic (LWLG) estimates using market research data

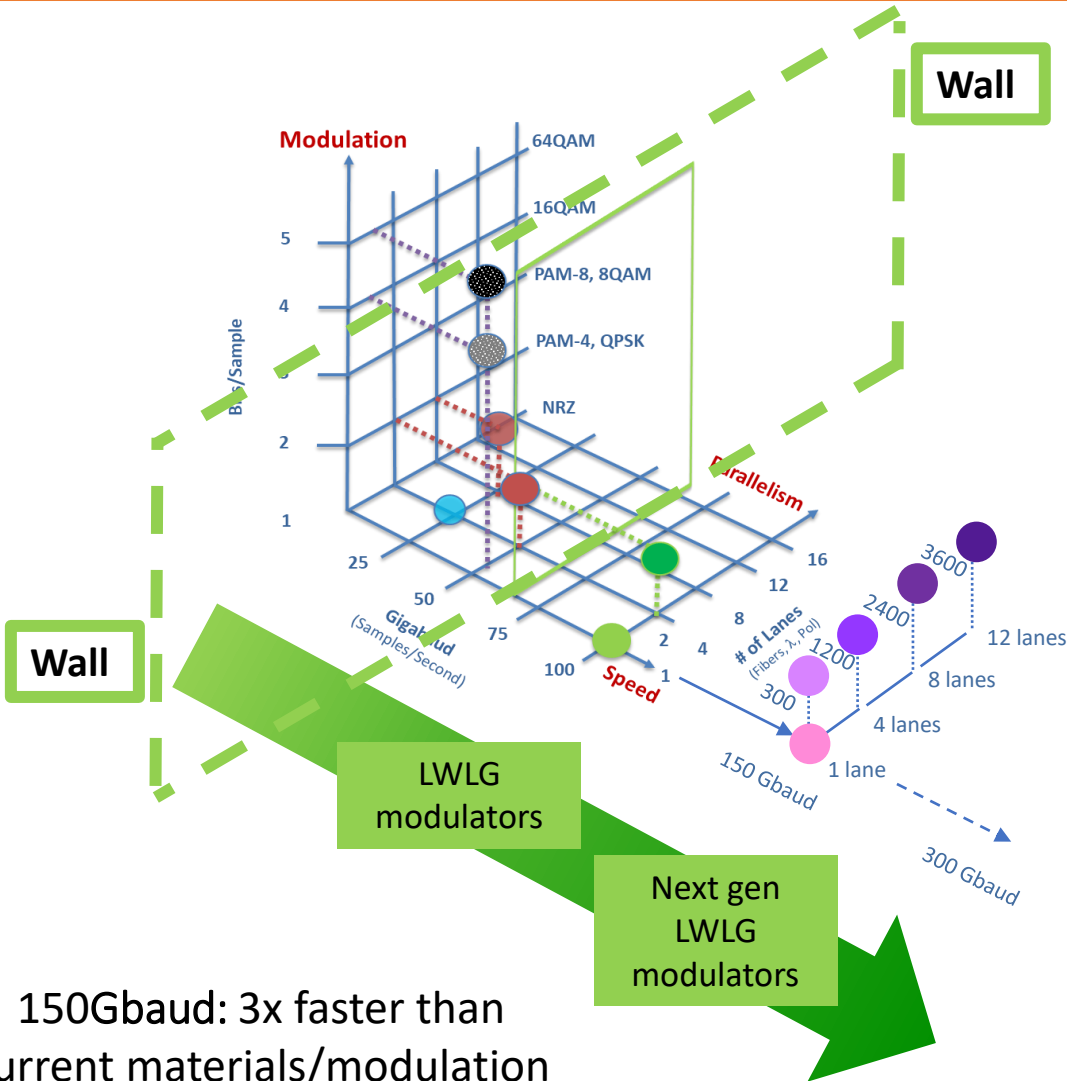
A server room with rows of black server racks. The room is dimly lit, with a grid ceiling. In the foreground, there are vibrant, glowing light trails in shades of blue, orange, and purple, swirling and streaking across the scene, suggesting data flow or network activity. The text "Market positioning" is overlaid in the center in a bold, white, sans-serif font.

Market positioning



Our polymers break through the *speed wall*

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Data rates after breaking through the wall...

- 100Gbps = 100Gbaud, NRZ, 1 lane
- 800Gbps = 100Gbaud, PAM4, 4 lanes
- 150Gbps = 150Gbaud, NRZ, 1 lane
- 300Gbps = 150Gbaud, PAM4, 1 lane
- 1200Gbps = 150Gbaud, PAM4, 4 lanes
- 2400Gbps = 150Gbaud, PAM4, 8 lanes
- 3600Gbps = 150Gbaud, PAM4, 12 lanes

150Gbaud: 3x faster than current materials/modulation

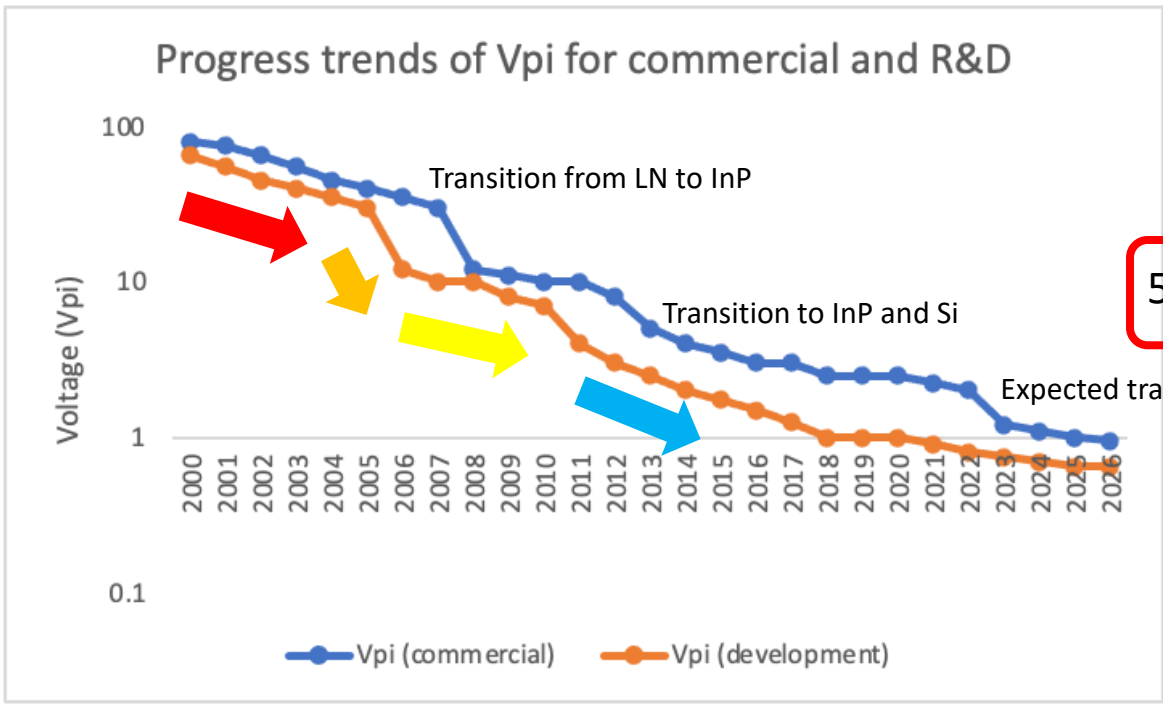
Faster is good...3X faster is better...



Low voltage polymers save power...

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- Low voltage polymers -----Modulators can be driven directly from CMOS
- Lower voltage operation -----Saves power (~2-3X at device level)
- Less IC chips/drivers on the line card -----Lowers power and cost (~5-10X at board level)



Key

- Power hungry
- High power
- Moderate power
- Low power

5V → 3V → 1V

Commercial progress trails development progress ~5yrs

Transition to polymer is coming as low power issues become dominant



Polymer target attributes vs competition

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Modulator technology	Silicon (SiPh)	Indium Phosphide (InP)	Lithium Niobate (LiNbO3)	TFLN	Polymer Stack	Polymer Plus	Polymer Slot
Speed (in 3dB bandwidth)	25-30GHz Commercial incumbent	30-40GHz Commercial incumbent	20-25GHz Waning incumbent	50-70GHz In development	100GHz	100GHz	Over 100GHz
Voltage Vpi (V)	2-5V	2-7V	5-40V	1-5V	1-2V	1-2V	0.4-1V
Loss (dB)	10-20dB	5-10dB	4-12dB	5-15dB	8-12dB	5-10dB	10-15dB
Relative Size/footprint (5=best, smallest size)	2	4.5	1	2	4	4	5
Energy consumption (based on NRZ)	10-20pJ/bit	10-40pJ/bit	>100pJ/bit	~10-20pJ/bit	5-10pJ/bit	5-10pJ/bit	1-5pJ/bit
Stability (5-max)	5	5	5	2-3	4.5	5	5
Compatibility with silicon foundry	Standard PDK fabrication	Requires InP foundry	Requires LN foundry	Requires LN foundry	Standard PDK fabrication	Standard PDK fabrication	Standard PDK fabrication
Requires driver IC chip (more \$ for customer)	Yes	Yes	Yes	Unclear	No	No	No

LWLG

Outperforms

Polymer modulators outperform competitive semiconductor technologies

Source: Lightwave Logic (LWLG) research showing target metrics for polymers

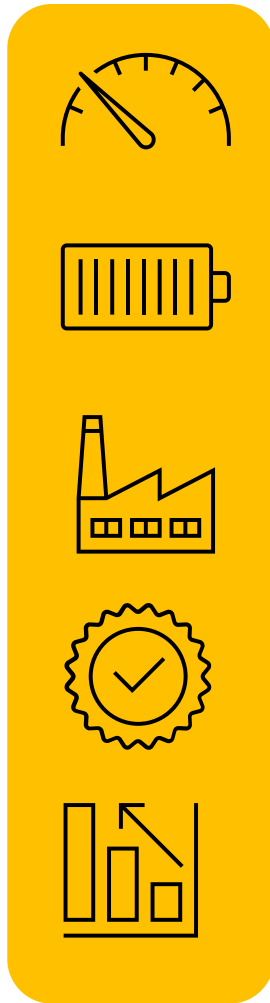
A server room with rows of black server racks. The scene is illuminated by vibrant, glowing light trails in shades of blue, orange, and purple, which appear to be data streams or network connections. The text "Unique core competences" is overlaid in the center in a bold, white, sans-serif font.

**Unique core
competences**



Polymer advantages

- Naturally very fast at switching light (material properties)
 - 2-3X existing solutions using modulators
- Naturally very low power consuming (material properties)
 - 10X lower power depending on device/architectural design
- Easily fabricated using CMOS/Silicon foundries
 - Process is standard and does not require special tool kits
- EO Polymer has security of supply
 - Material designed and sourced directly from LWLG
- Low-cost addition to integrated photonics platforms
 - Silicon photonics can be boosted in performance



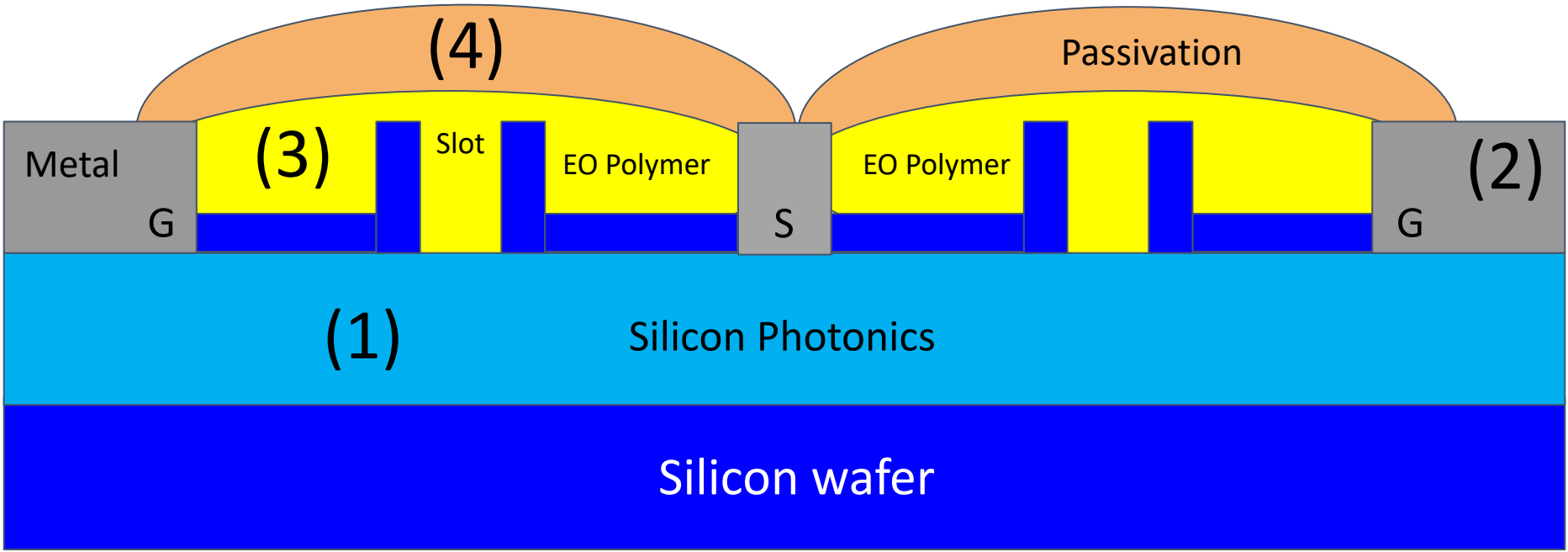
Polymers are unique in their properties



CMOS/silicon compatible PDK → Polymer Slot™

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- (1) Standard CMOS/silicon photonics chip with slots defined by photolithography
- (2) Standard metallization for gate/source contacts
- (3) Spin-on EO polymer, cured in standard ovens, polled for optical switching
- (4) Dielectric passivation for protection to environment (chip-scale packaging)

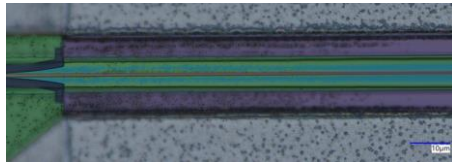
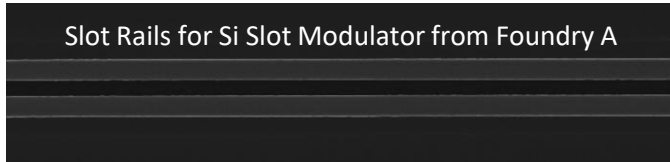


Standard silicon fabrication processes; standard silicon tools

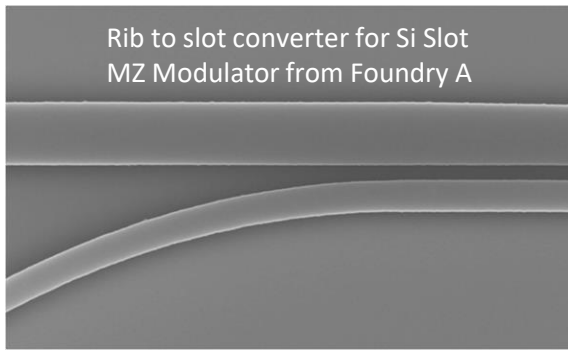
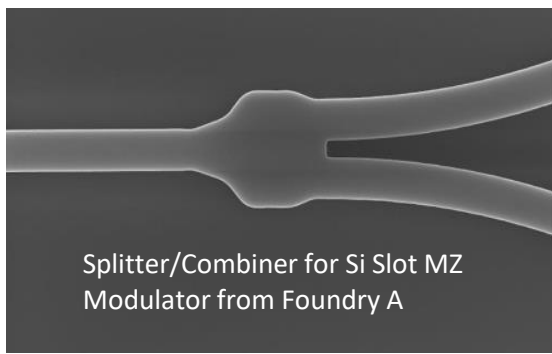
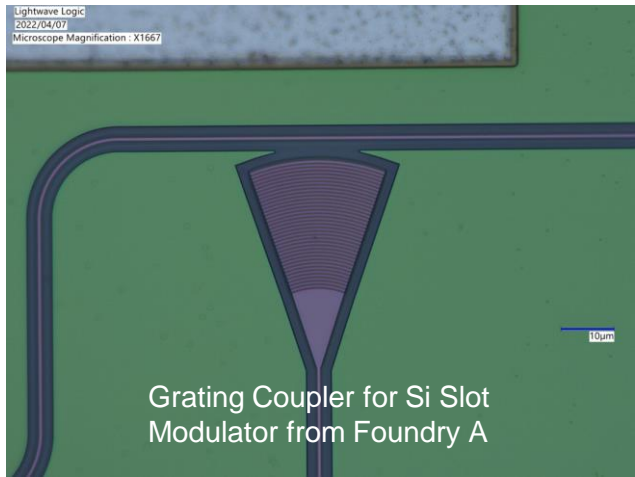
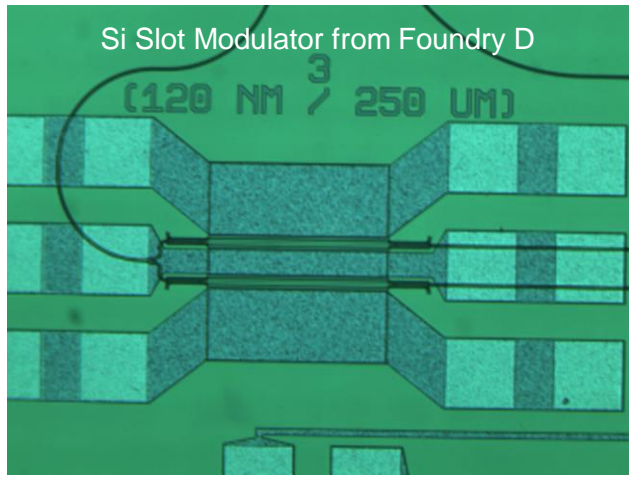
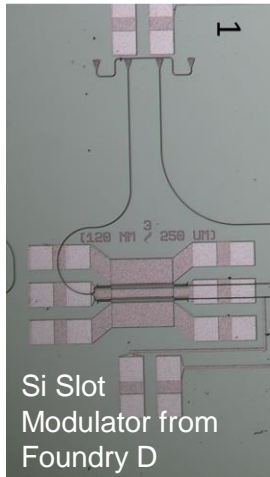


Foundry fabrication with PDK

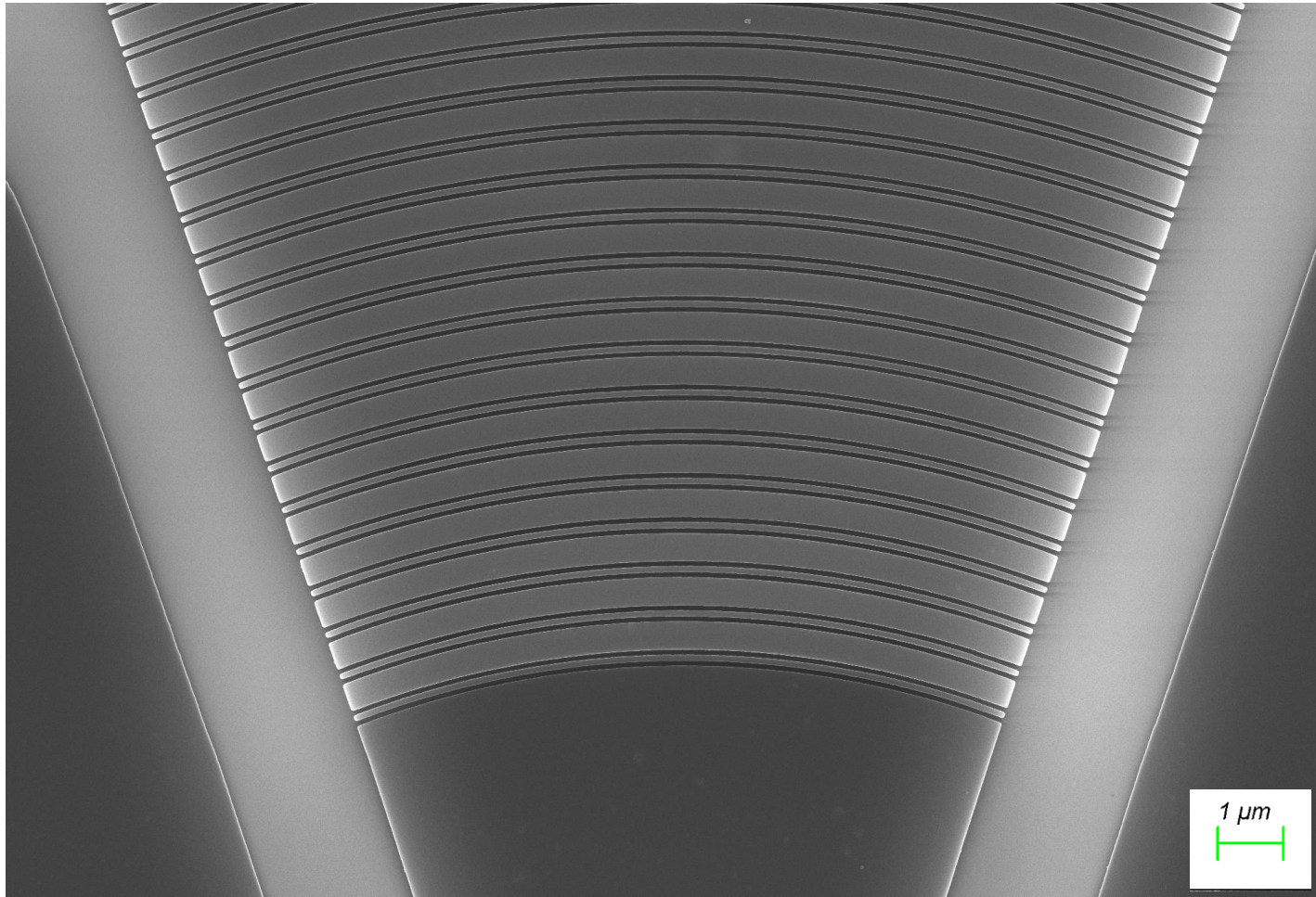
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Optical Microscope image of strip to rib converter + slot waveguide from Foundry D



Standard silicon fabrication components...



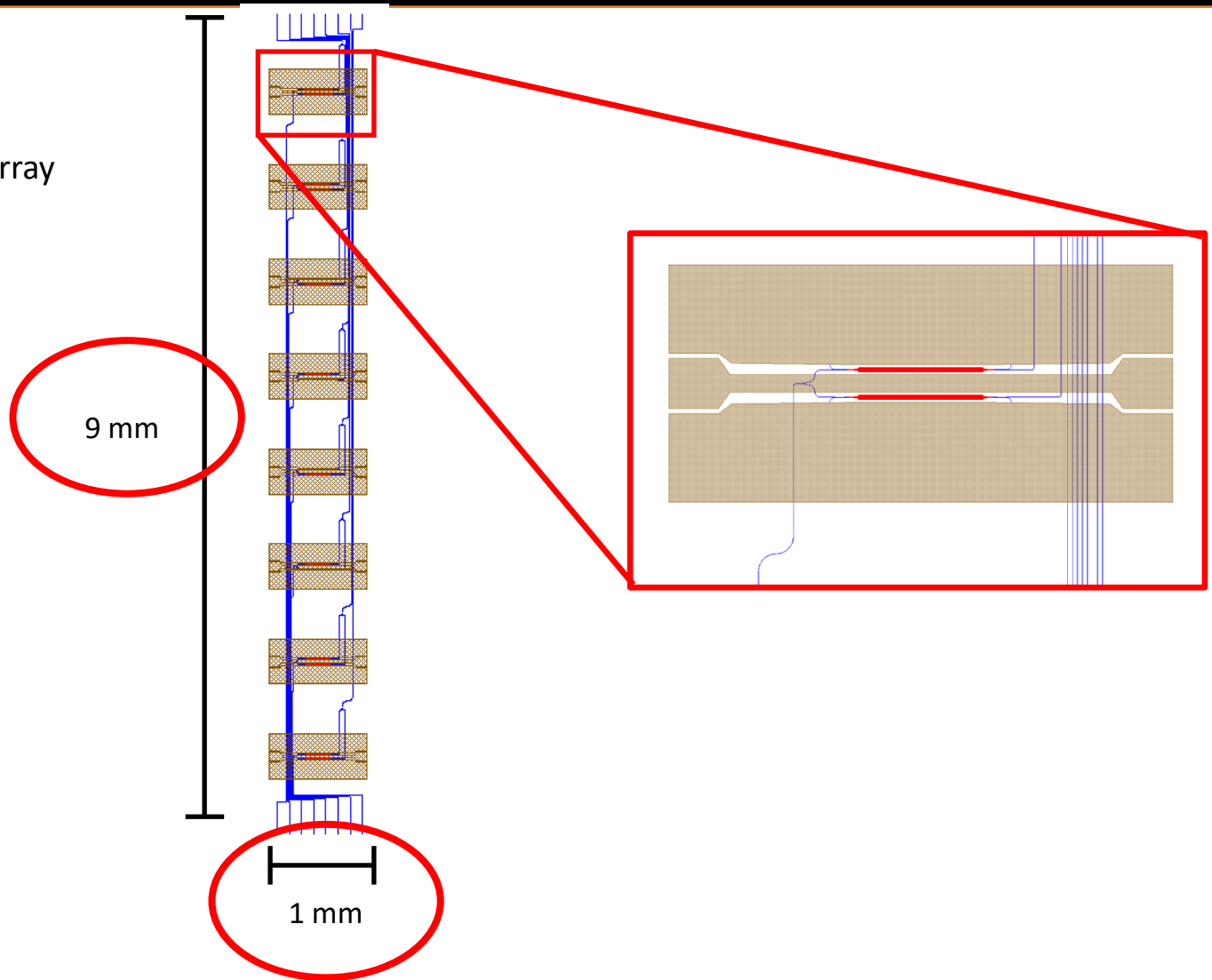
Vertical grating coupler example



Polymer slot modulators are very small

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LWLG
8 x 1 Polymer Slot™ array

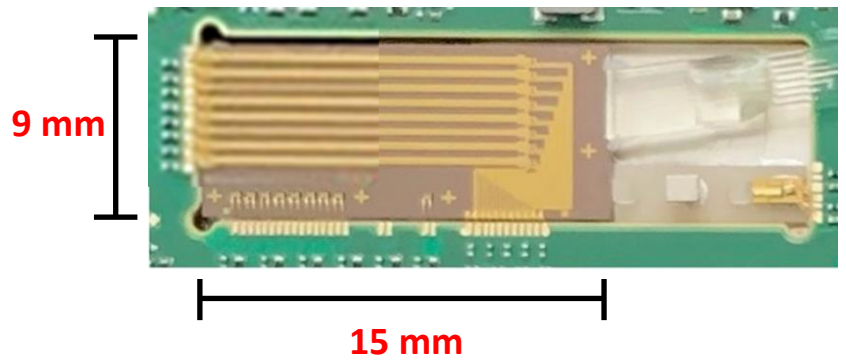


Size matters!



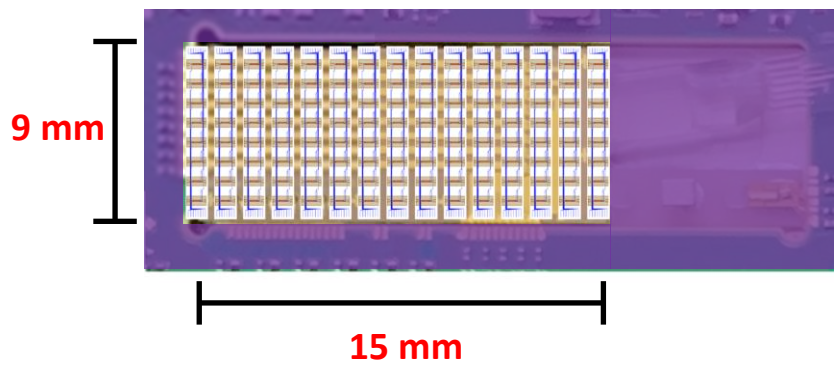
Only 30X better* ...

Competitive transceiver TFNL 800G-DR8 Module



8 modulators x 100G = 800G or 0.8T

Polymer Slot™



120 modulators x 100G = 12T
 120 modulators x 200G = 24T

Potential for 30x data capacity in same pluggable formfactor

At least 30X better than competition...size, low power, and speed matter...

Source: Lightwave Logic (LWLG), Hyperlight (2022); *Density can be increased a factor of 2 giving ~60X capacity improvement towards 50T



Where we enter the market...

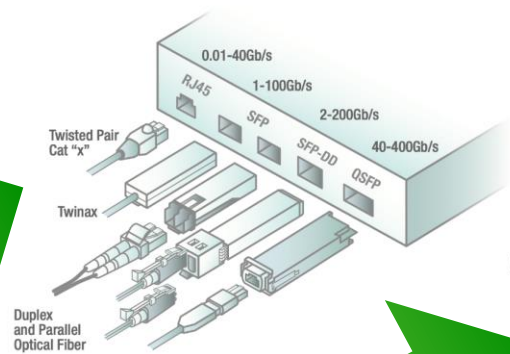
FORM FACTORS

Polymer modulators fabricated in silicon foundries

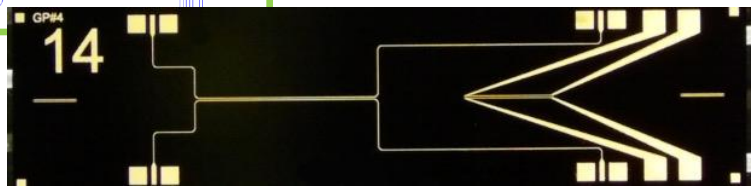
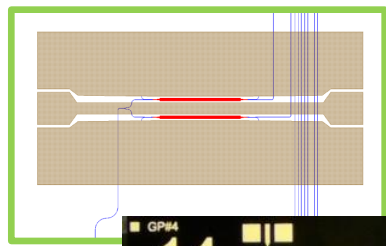
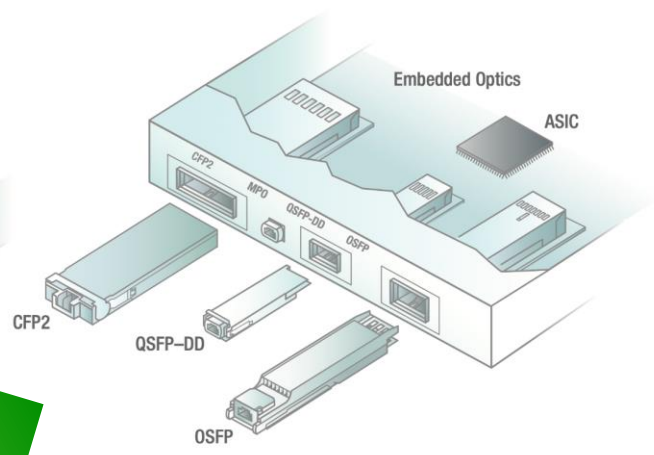
This diagram shows the most common form factors used in Ethernet ports. Hundreds of millions of RJ45 ports are sold a year while tens of millions of SFP and millions of QSFP ports ship a year.

This diagram shows new form factors initially designed for 100GbE and 400GbE Ethernet ports.

1-4 Lane Interfaces

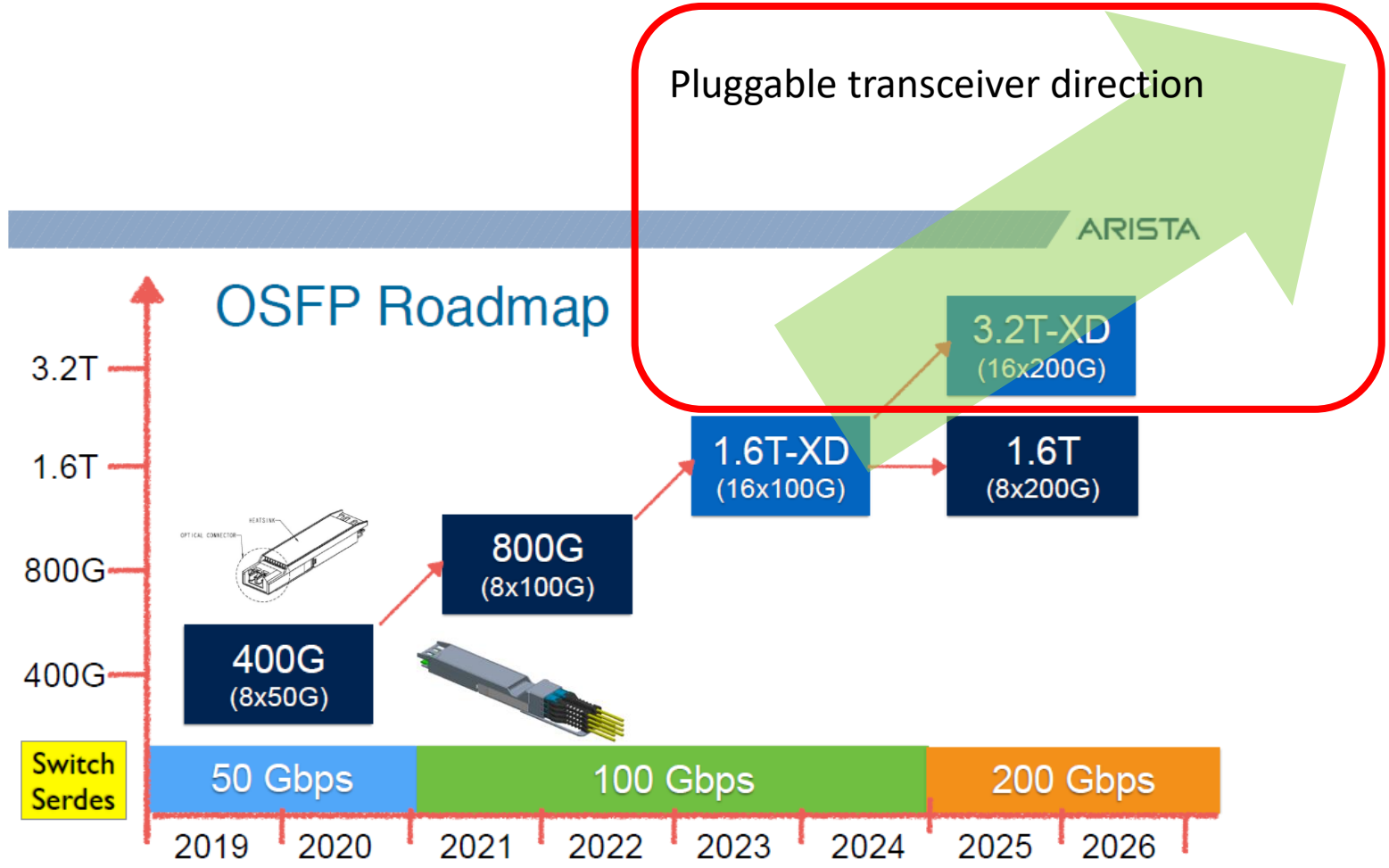


4+ Lane Interfaces



Polymer engines for pluggable transceivers

Optical transceiver trends

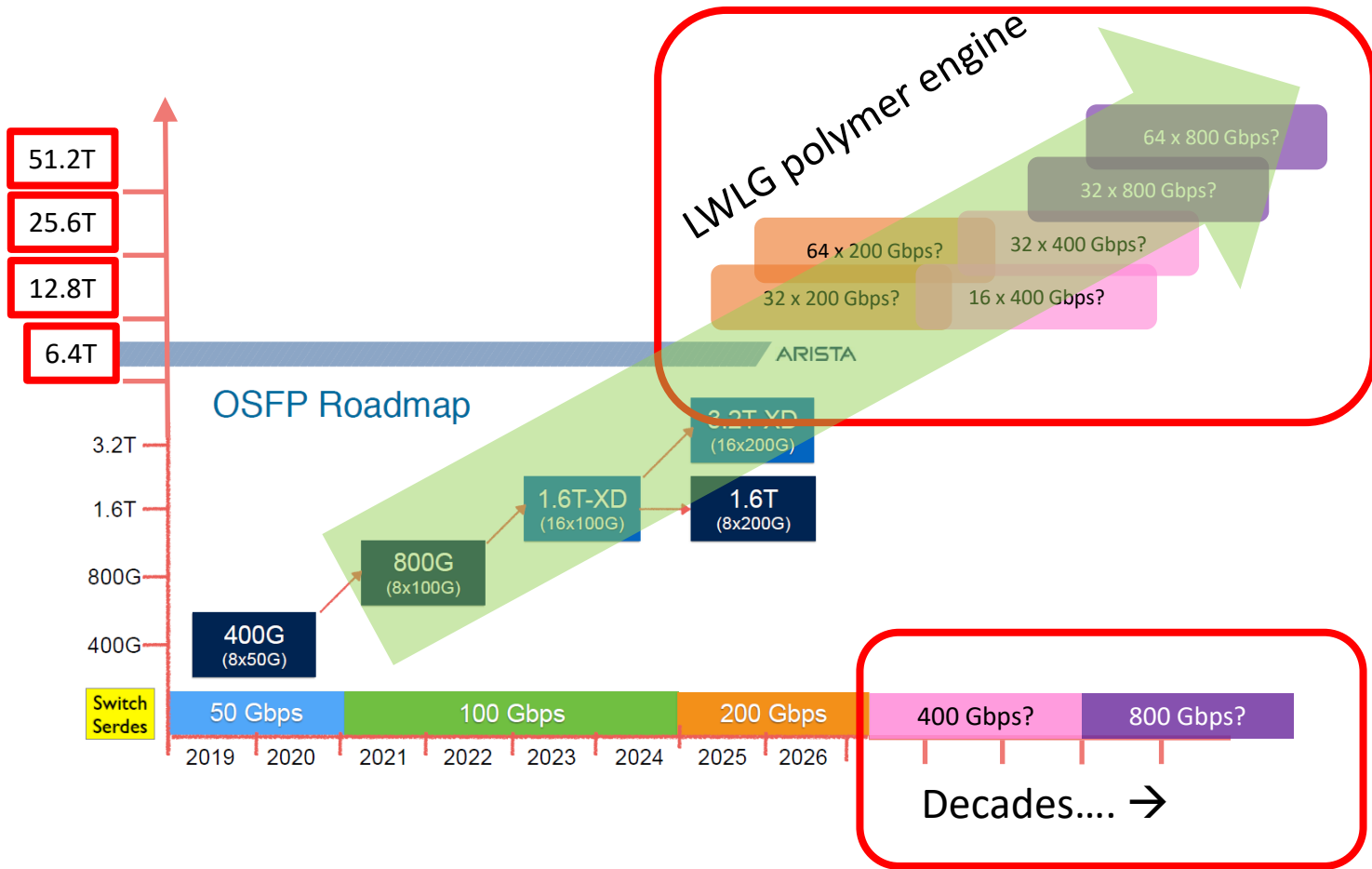


Pluggable transceivers need to increase in speed in conjunction with the electronics

Source: Adapted from Arista (2022), Lightwave Logic (LWLG), OSFP MSA (2022)

Polymers for decades...

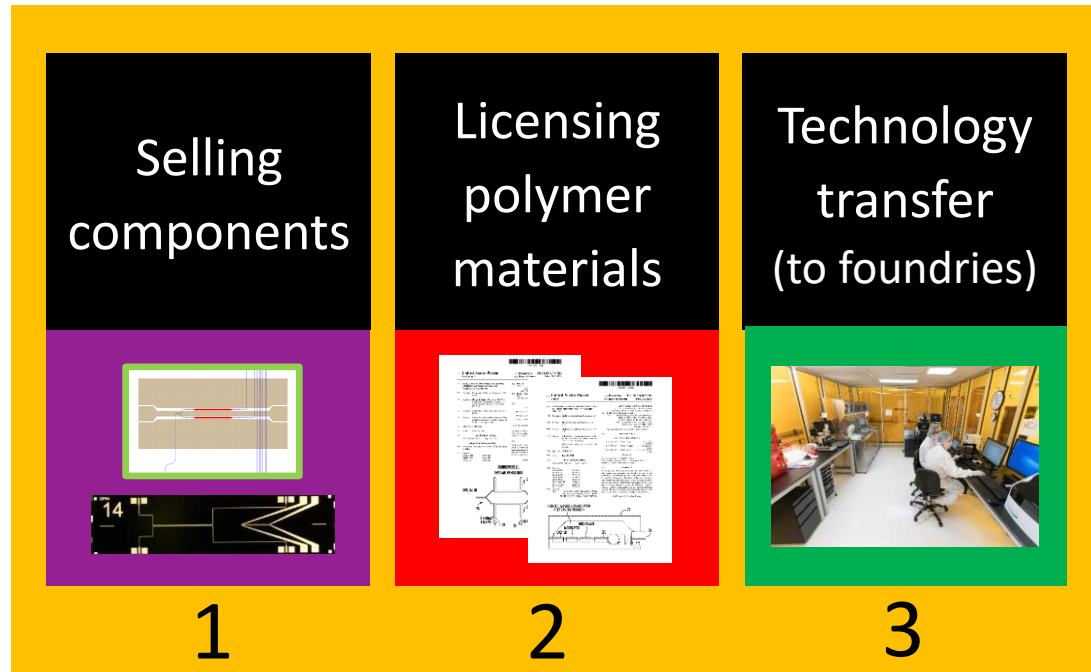
LIGHTWAVE



Roadmap enabled by high speed, low power, tiny footprint polymers...

A server room with rows of black server racks. The scene is illuminated by vibrant, glowing light trails in shades of blue, orange, and purple that swirl and streak across the floor and racks, creating a sense of dynamic energy and data flow. The text 'Business strategy' is centered in the foreground in a clean, white, sans-serif font.

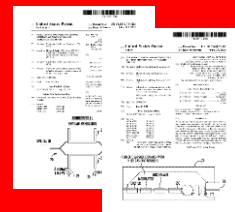
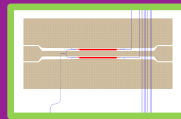
Business strategy



Selling
components

Licensing
polymer
materials

Technology
transfer
(to foundries)



1

2

3

- 1. Prototype testing underway for future modulator sales as part of a silicon photonics (PIC) platform
- 2. Negotiating supply agreements for polymer materials as part of generating licensing royalty
- 3. Discussing technology transfer as part of a process development kit (PDK) with CMOS/silicon foundries

To become a leader in the engineering and manufacturing of electro-optic organic polymers...



70+ Patents & Patent Applications

Technology transfer (silicon foundries)
Licensing royalties (OEM, CM, direct customers)



ISSUED	ISSUED	INTERNATIONAL
Heterocyclical chromophore architectures Polymer materials ~60% of portfolio	Polymer modulator devices Fab, high speed, PIC, device/chip packaging ~40% of portfolio	Includes materials, devices, and packaging PCT countries ~50% of portfolio
PUBLISHED	ACQUIRING	FILING
Advanced polymer materials, silicon photonics PICs, devices & packaging inventions	Lumera/Gigoptix Patent portfolio (15 Patents) Reviewing opportunities	Innovative polymer materials Polymer/silicon photonics Hybrid PICs Very active

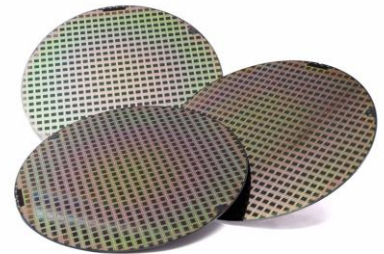
Portfolio enables licensing & tech transfer → opportunity to scale volume manufacturing



Partnering for success

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- Partnering with multiple **foundries**, packaging partners and module/transceiver partners to position LWLG for future high-volume production
- Partnering to **qualify** polymer Process Development Kits (PDK) with foundries using standard fabrication techniques
- Technology evaluation & feedback
- Partnering for **licensing** the use of polymer materials that have been sourced, supplied and manufactured by LWLG
- Partnering for **technology transfer** of fabrication and device design to manufacturing facilities and foundries



Partnering allows us to focus on our uniqueness, efficient use of capital, & to prepare for volume...



Volume scale with silicon foundries *with timelines*

L I G H T W A V E

Foundry	Geographical location	Wafers	Existing PIC PDK (silicon photonics, InP)	Open to create EO polymer PDK	Expected results
Foundry A (polymer plus)	North America	Silicon	Yes	In progress	2H22-1H23
Foundry B (polymer plus)	North America	Silicon	Yes	In progress	2H22-1H23
Foundry C (polymer plus)	Europe	Silicon	Yes	In progress	2H22-1H23
Foundry D (polymer slot)	North America	Silicon	Yes	In progress	2H22
Foundry E (polymer slot)	Europe	Silicon	Yes	In progress	2H22
Foundry F (polymer slot) – in discussion	North America	Silicon	Yes	Planned	2023
Foundry G (polymer slot) – in discussion	Europe	InP	Yes	Planned	2023

⋮

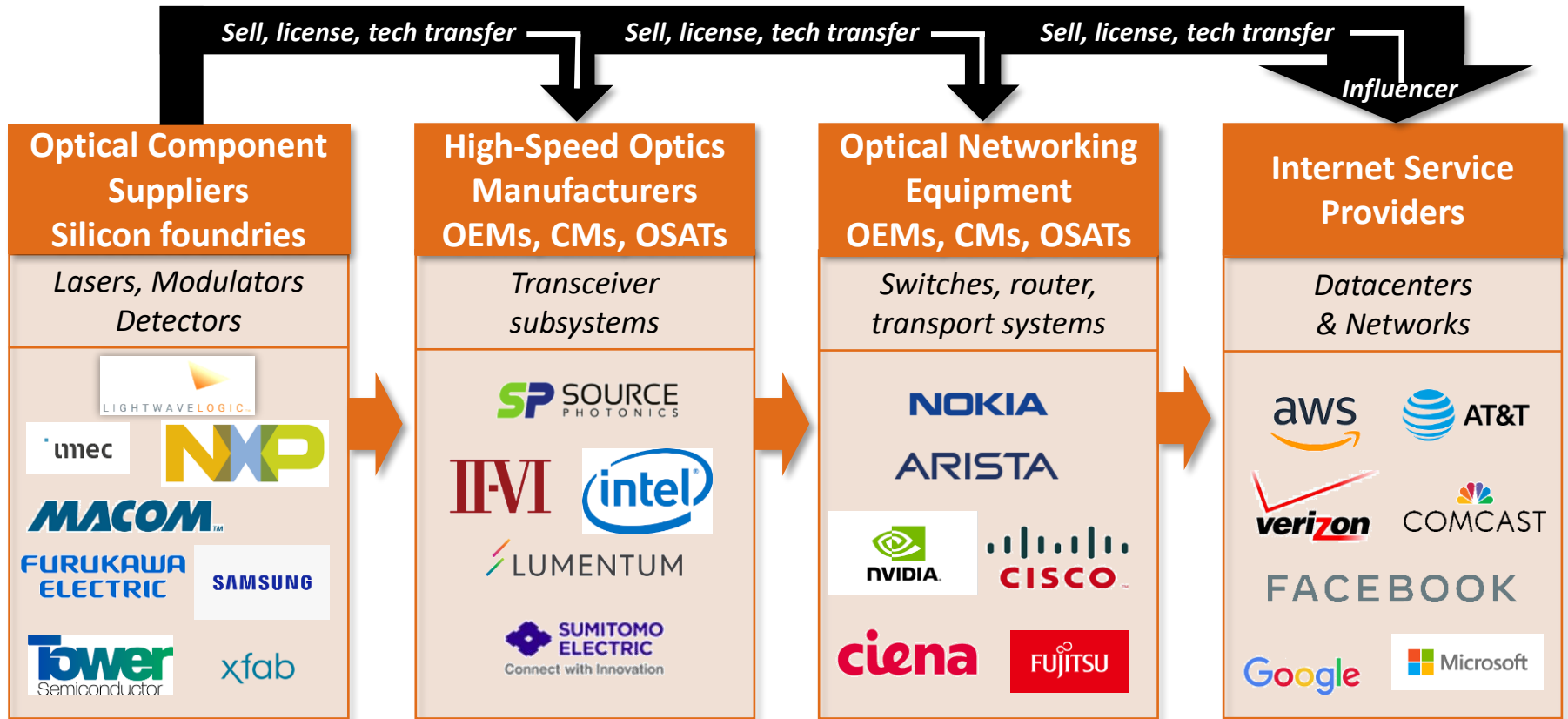
Deep activities with foundries for volume scaling



Potential customers at all levels of value chain

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As an 'optical engine' supplier, our plan is to sell, license, or technology transfer into OEMs, CMs, foundries as well as direct to manufacturers

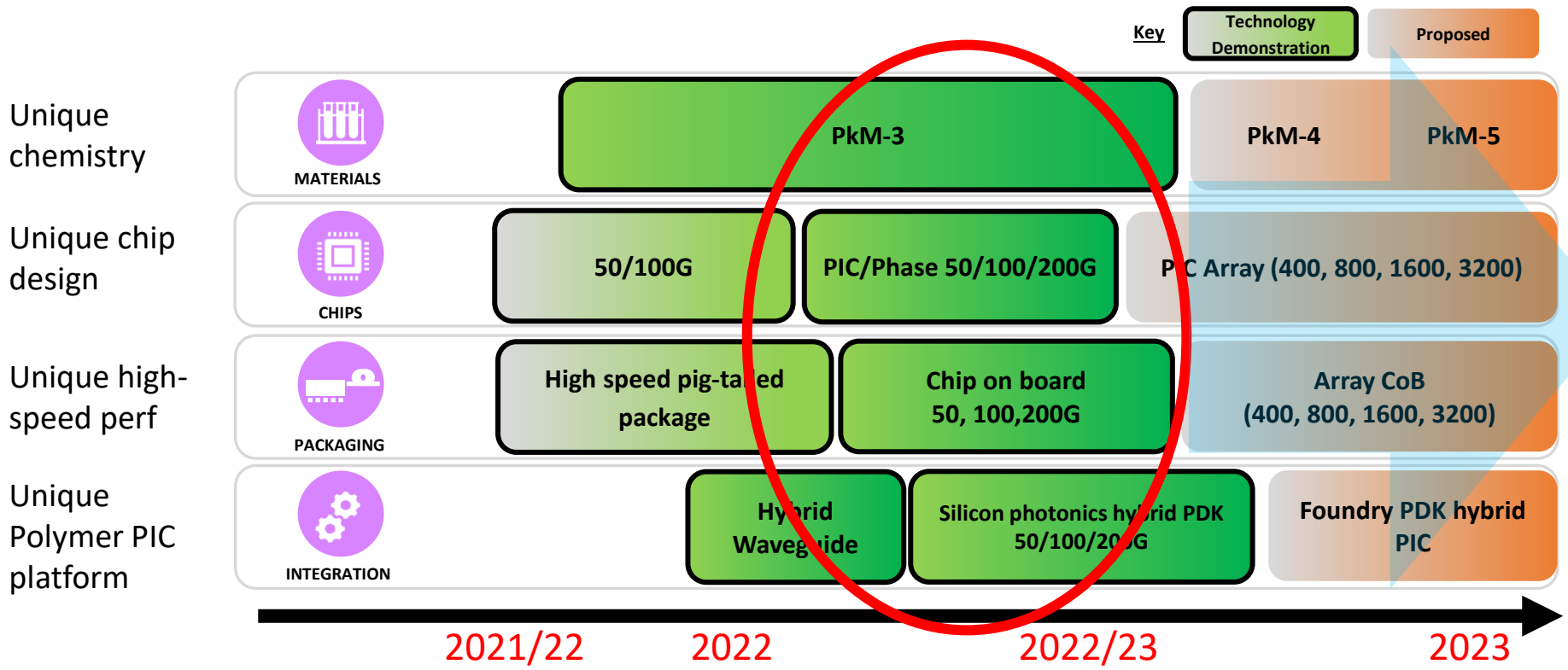


Potential to enter market in many verticals both direct and indirect (via OEMs, CMs, OSATs, foundries)



Technology roadmap *with timelines*

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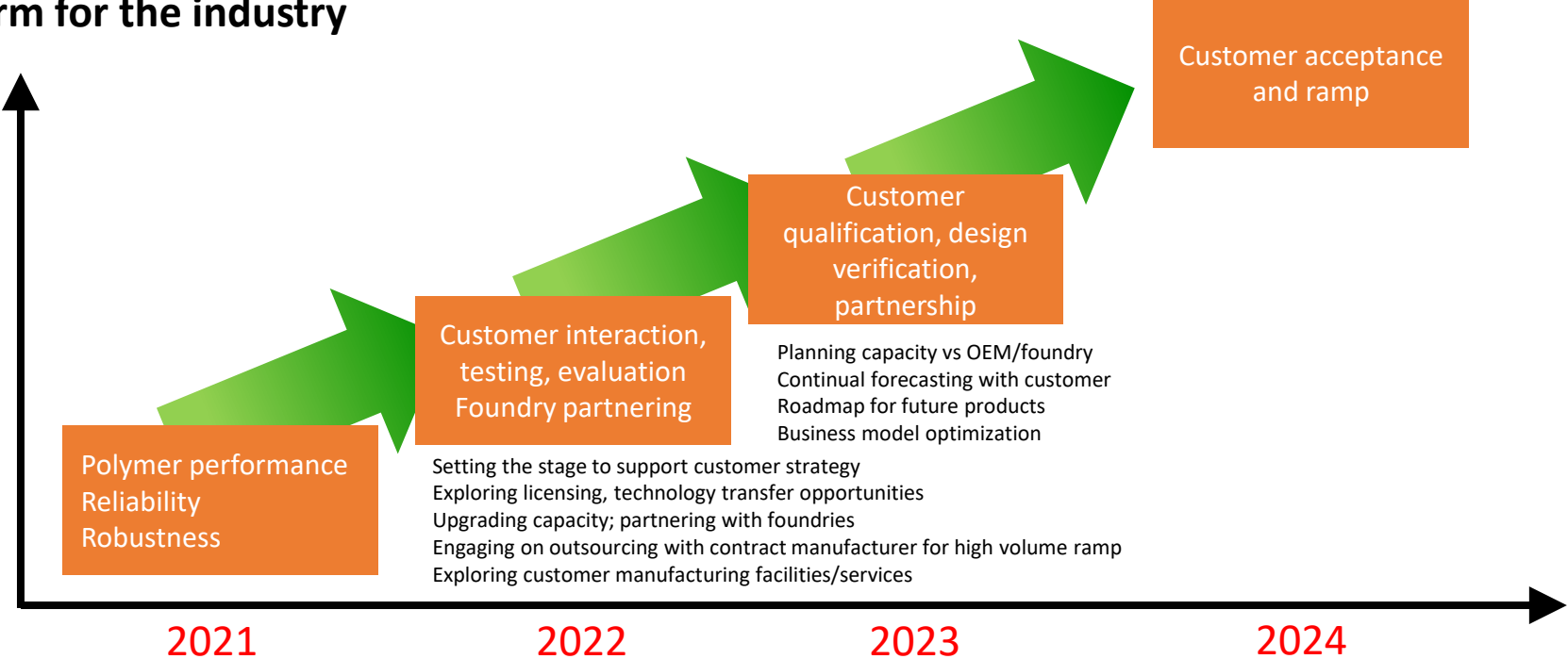
Our technology roadmap emphasizes our unique value to the industry



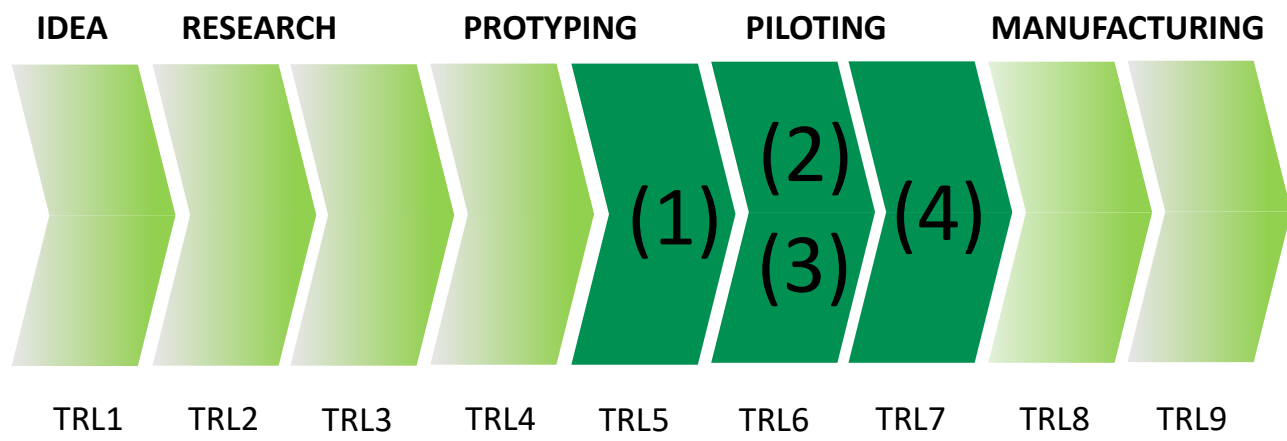
Polymer business roadmap *with timelines*

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Driving forward with our 'high speed, low power' polymer platform for the industry



Current engagement includes foundry partnering



Strategic Milestones:

- (1) Proof of concept prototypes with fabrication from silicon foundries (2H22)
- (2) Engineering samples using silicon foundry fabrication (2H22/1H23)
- (3) Licensing/supply agreement (2H22/1H23)
- (4) Technology Transfer definition and qualification (1H23)

Planning key milestones

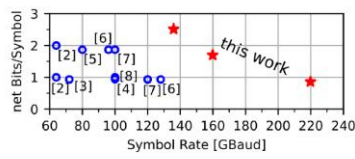


Industry 3rd party review (2021)

ETH zürich High Baud-Rate Resonant E/O Modulator – Literature

- Compact, low-loss and energy efficient E/O modulators are key for future optical data transmission [1].
- Recent High Baud-Rate Demonstrations of Resonant Modulators for IM/DD

 Sun et al., OFC PDP, 2018 [2] • 128Gbps 4PAM • 50GHz E/O Bandwidth	 Haffner et al., Nature, 2018 [3] • 72Gbps 2PAM • > 110GHz E/O Bandwidth	 Messner et al., ECOC, 2020 [4] • 100Gbps 2/4PAM • 50GHz E/O Bandwidth
 Tong et al., JLT, 2020 [5] • 160Gbps 4PAM • 55GHz E/O Bandwidth	 Sakib et al., CLEO, 2021 [6] • 192Gbps 4PAM • 77GHz E/O Bandwidth	 Zhang et al., ECOC PDP, 2020 [7] • 200Gbps 4PAM • 79GHz E/O Bandwidth



- ✓ 1.7x in 2PAM symbol rate
- ✓ 2x in line rate

[1] D. A. B. Miller, "On-chip Optoelectronics for Low-Energy Information Processing and Communications," *Journal of Lightwave Technology*, vol. 35, no. 3, pp. 349-386, 2017. doi: 10.1109/JLT.2017.2647779.
 [2] D. Peck et al., "100-Gbit/s Waveguide Straps Grating Modulator in Thin-Film Lithium Niobate," *IEEE Photonics Technology Letters*, vol. 33, no. 2, pp. 85-88, 2021, doi: 10.1109/PTL.2020.3046460.
 Marco Eppenberger - marcop@ethz.ch | 16.09.2021 | 2

- Paper: 'Plasmonic racetrack modulator transmitting 220 Gbps OOK and 408 Gbps 8PAM
- ECOC 2021

- World record performance electro-optic polymer plasmonic slot modulators
- Outperforming competitive modulator designs/materials

ETH zürich Conclusion

Schematic

Microscope image
20µm

Fiber-to-Fiber Transmission

220Gbps 2PAM
BER=3.44·10⁻²

Resonant E/O Modulator features:

- ✓ 1 dB device loss in pass-band
- ✓ >110GHz bandwidth
- ✓ 220Gbps 2PAM
- ✓ 408Gbps 8PAM

world record

Electro-Optical Power Response at OP

408Gbps 8PAM
BER=3.83·10⁻²

Electro-optic polymers demonstrate world class speed of operation



Industry 3rd party review (2022)

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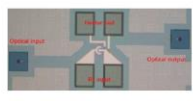
ETH zürich

Microring Modulators (MRM) Are Highly Temperature Sensitive

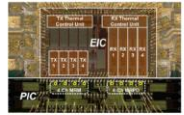
- High-performance Si MRMs have integrated heaters to keep devices at a given temperature.
- All Si MRM-based systems need complex thermal controllers.



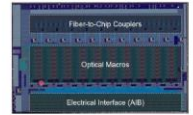
192Gbps 4PAM 77GHz MRM
M. Sakib et al., *CLEO*, 2021.



200Gbps 4PAM 79GHz MRM
Y. Zhang et al., *ECOC PDP*, 2020.



4-λ 50G Si MRR WDM Transceiver
H. Li et al., *ECOC*, 2021.

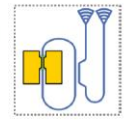


8-λ 16G Si MRR WDM Transceiver
M. Wade et al., *OFC PDP*, 2021.

MRMs high temperature sensitivity has considerable impact on device- and system-level design!

⇒ Finding a temperature-resistant resonant modulator would benefit WDM systems.

✓ The POH-RT modulator shows vastly improved temperature stability!



• Paper: 'Enhanced stability of resonant racetrack plasmonic-organic-hybrid modulator'

• OFC 2022

Institute of Electromagnetic Fields (IEF)

Marco Eppenberger - marcep@ethz.ch | 10.03.20

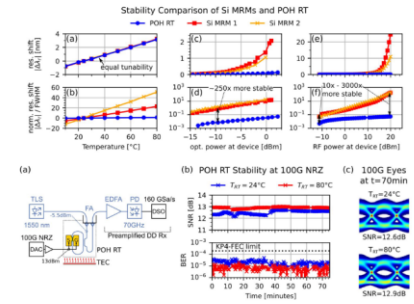
ETH zürich

Conclusion

- High performance electro-optic polymer plasmonic slot modulators outperform the competition
- Competition are temperature sensitive (Silicon micro-ring resonators) which limits their performance...

- Compared to Si MRMs, the plasmonic-organic-hybrid racetrack modulator has shown to be
 - 250x more stable to optical power variations.
 - up to 3000x more stable to signal power variations.
 - modulating 100G NRZ at 80°C for >70 minutes.

✓ The plasmonic racetrack modulator has the potential to drastically simplify WDM communication system design.



Institute of Electromagnetic Fields (IEF)

Marco Eppenberger - marcep@ethz.ch | 10.03.2021 | 9

Electro-optic polymers outperform silicon modulators



Sample market reactions

High speed

- “Lightwave has the roadmap for decades and it is polymers”

Low Power

- “We have to have low power modulators going forward”

Optical networking/internet

- “Your timing is incredible – the market needs your technology”
- “Both 1310 and 1550nm wavelength windows will be important and polymers can do both”

Implementing modulators into silicon photonics...

- “We did not need to create special fabrication recipes for the electro-optic polymers”
- “Electro-optic polymers are pretty easy to use”
- “Polymers make silicon photonics much more exciting – hybrid is clearly the direction”
- “Scaling wafer size makes lots of sense”

Reliability and robustness

- “Polymers have come a long way – we expect them to be reliable”



New opportunities

- “Your polymers would be really great for AR/VR goggles”
- “Wouldn’t electro-optical polymers be a great solution for optical switching”



Feedback strong and constructive







Qualified silicon photonics sampling

- Polymer Plus™ chips 70GHz, <3V, → We are testing foundry chips 
- Packaged Polymer Plus™ prototypes → In progress 

Progress with commercial partners

- Qualified foundry and pkg partners → We have qualified partners 
- Reliability, stability, hermeticity testing → We are continually testing 

Deeper commercialization

- Qualification of materials/chips → QA and reliability testing ongoing 
- Live traffic trials in customer system → We are engaged with customers 
- Commercial agreement with customer → In discussion 
- Qualification for Approved vendor list → In discussion 



2022 goals – *with new updates*

Qualified sampling

- Polymer Plus™ prototypes → Beta/qualification plan
- Polymer Slot™ prototypes → Beta/qualification plan

Commercial partners

- Established deal* with partner → Announcement of partner
- Established deal* with foundry → Announcement of foundry

Deeper commercialization

- Qualification of product → Published data/specification
- Licensing of polymers → 1 licensee
- Technology transfer → 1 tech transfer to manufacturing

Focus on commercializing polymers for optical switching...

* Commercial deal = sell, license, royalty, technology transfer

Investor Relations

The background of the image is a server room with rows of black server racks. The room is dimly lit, with a grid ceiling. Overlaid on the server racks are vibrant, glowing light trails in shades of blue, orange, and purple. These trails are dynamic and curved, suggesting data flow or network activity. The overall aesthetic is high-tech and digital.



Typical questions we hear...

Commercial & business

- Do you have more info on partners? ----- We are partnering with foundries. We have not provided guidance on who they are, however, they are part of our goals.
- Do you have revenue guidance for 22/23?----- Internally, yes; pre-revenue guidance is difficult - we will review.
- Announcement of business deal?----- We are currently engaged with deal discussions.
- Announcement of licensing of polymer technology?----- There are interested parties; discussions are ongoing in 2022
- Announcement of technology transfer to foundry?----- We are in discussions with our foundry partners and discussions are ongoing in 2022
- Product availability?----- We are providing better granularity on product availability in our roadmaps (in terms of timing) as part of our goals

Business model

- Is technology transfer and licensing the best model for LWLG?----- We believe it is given the vertical nature of the customer base.
- Will customers purchase directly from LWLG?----- Some may, and others will ask us to utilize their OEMs, CMs, and their relationships with foundries.
- How many folks do you expect to hire in the next 12 months?----- We expect to grow at least 5-10 folks.

Finance

- How much financing is needed to break even?----- We haven't provided guidance so we can't answer this exactly, though we are comfortable with our access to friendly capital.
- What is your runway?----- We have cash to last until Jan 2024 (per 10Q 10th May 2022)
- Burn rate?----- Our burn rate is ~\$1.1M/mon (per 10Q 10th May 2022)



Typical questions (2)

Technical - polymer

- Will the polymers get better in performance?-----Our performance is sufficient, and we always strive to improve polymer performance to help customers.
- What is the reliability of the polymers?-----Our latest results are exciting and stable with good lifetimes
- Are you doing Telcordia testing?-----Yes - long-term Telcordia testing of our devices.

Technical - device

- How does the Polymer Plus compare to the Polymer Slot?-----Both are additive to silicon photonics to boost speed and lower power. The slot has the smallest footprint (or size).
- How fast do the devices run?-----Initial bandwidths >70GHz, then >100GHz and much higher
- Is the yield good?-----We have seen excellent yields from the foundries.

Foundry

- Who are our foundries?-----Folks we trust with our technology. We hope to provide updates as commercial progress matures.
- How easy is it to use the polymers in a foundry with PDK?-----We believe it is straightforward. No new tooling.

Competition

- How do we compare to TFLN and other technologies?-----We are smaller, faster, and lower power.
- Are we still the fastest and lowest power modulators?-----Yes, we have an incredible platform for decades...
- Do you expect other polymer companies to compete?-----Yes, this space is very hot right now.

Customer

- How is the feedback?-----Positive: Our technology is attractive and is an enabler for them
- What is your level of interest from customers?-----We have many requests for parts. Interest is high.
- What is the thing customers ask for the most?-----They all want hardware to test.

A server room with rows of black server racks. The scene is illuminated by vibrant, glowing light trails in shades of blue, orange, and purple that swirl and flow through the aisle, creating a sense of dynamic energy and data movement. The text "Our leadership" is centered in a clean, white, sans-serif font.

Our leadership



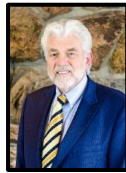
Experienced management & board

LIGHTWAVE



Dr. Michael S. Lebby - CEO

35+ years in photonics & semiconductors (CEO/CTO level)



Mr. Jim Marcelli - President & COO

35+ years experience in finance & operations



Rear Admiral Tom Zelibor, USN (Ret)
Chairman

35+ years experience in global operations & CEO leadership



Dr. Craig Ciesla
Independent Director

Innovator in optics, microfluidics, electronics and nanofabrication (CTO/CEO level)



Dr. Fred Leonberger
Independent Director

35+ years in optical modulators & systems (CTO level)



Mr. Ronald A. Bucchi
Independent Director

35+ years experience in accounting & finance



Mr. Siraj Nour El-Ahmadi
Independent Director

Leadership: telecom network equip businesses (CTO level)



Dr. John Zyskind – VP Engineering

35+ years experience in telecom/datacom silicon photonics, pluggable transceivers (VP/CTO level)





World class advisory board

LIGHTWAVE



Dr. Joseph A. Miller, Jr.

35+ years chemistry, fiber optics R&D (CTO level)



Dr. Christoph Harder

Expert in photonics, technology development, and manufacturing/selling of photonics components/apps (CTO/CEO level)



Dr. Andreas Umbach

Coach and consultant on entrepreneurship and photonics technologies (CTO/CEO level)



Dr. Franky So

Leading materials research authority and thought leader in polymer-based OLEDs (CTO/Professor level)



Hoechst



A server room with rows of black server racks. The room is dimly lit, with a grid ceiling. In the foreground, there are vibrant, glowing light trails in shades of blue, orange, and purple, swirling and streaking across the scene, suggesting data flow or network activity. The word "Summary" is centered in the middle of the image in a large, white, sans-serif font.

Summary



Summary...

LIGHTWAVE

Material Science



Standard fabrication & testing



High speed device design & packaging



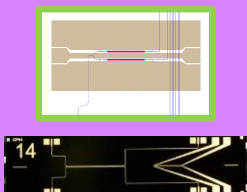
Powerful patent portfolio



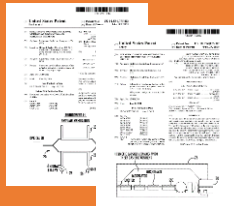
Huge \$B markets

Product	Revenue (\$M)	Units	Price (\$)	Market	Key Applications
Fiber optics	~40,000	17%	~500,000	Passivity, 100% US/China	Core/edge, strong growth
Optical interconnects	~10,000	3%	~100,000	Passivity, 100% US/China	Core/edge, strong growth
Optical switches	~10,000	2%	~100,000	Passivity, 100% US/China	Core/edge, strong growth
Optical amplifiers	~10,000	1%	~100,000	Passivity, 100% US/China	Core/edge, strong growth
Optical sensors	~10,000	1%	~100,000	Passivity, 100% US/China	Core/edge, strong growth
Optical modulators	~10,000	1%	~100,000	Passivity, 100% US/China	Core/edge, strong growth
Optical waveguides	~10,000	1%	~100,000	Passivity, 100% US/China	Core/edge, strong growth
Optical filters	~10,000	1%	~100,000	Passivity, 100% US/China	Core/edge, strong growth
Optical isolators	~10,000	1%	~100,000	Passivity, 100% US/China	Core/edge, strong growth
Optical circulators	~10,000	1%	~100,000	Passivity, 100% US/China	Core/edge, strong growth

Selling components



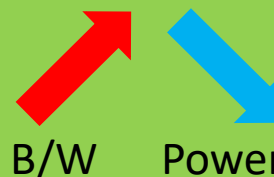
Licensing polymer materials



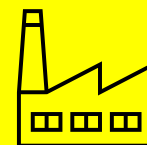
Technology transfer (to foundries)



Solving key internet Achilles Heels



Volume scale with silicon foundries



- We have made *unparalleled* progress in the last 12 months...
- Our technology is competitively superior and *unique*...
- We are positioned to have polymers become *ubiquitous*...
- We have the resources and plans in place to succeed...

Investor Relations Contact

Greg Falesnik or Luke Zimmerman
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949-259-4987

LWLG@mzgroup.us

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Englewood, CO 80112

lightwavelogic.com

Thank you!

Unparalleled, Unique, and Ubiquitous...