Lightwave Logic Provides First Quarter 2024 Corporate Update

Dr. Michael Lebby to Host Corporate Update Presentation, Tour of Englewood Facility and Live Device Demonstration Following Annual Meeting of Shareholders on May 22, 2024

ENGLEWOOD, Colo., May 13, 2024 /PRNewswire/ -- Lightwave Logic, Inc. (NASDAQ: LWLG), a technology platform company leveraging its proprietary electro-optic (EO) polymers to transmit data at higher speeds with less power in a small form factor, today provided a corporate update in conjunction with the filing of its Quarterly Report on Form 10-Q for the first quarter ended March 31, 2024.

First Quarter 2024 and Subsequent Company Highlights:

- Over 20 major corporations have viewed Lightwave Logic's technology demo of our polymer modulators with world-class performance of 200Gbps at 1V drive voltage.
- Provided details on how polymer modulators are now being fabricated on standard industry 200mm silicon wafers at a commercial silicon foundry
- Demonstrated thought leadership with critical contributions to the recently published global "Integrated Photonics System Roadmap - International" (IPSR-I) to accelerate the high-volume commercial manufacturing of high-value integrated photonics over the next decade and beyond.
- Secured new patent for diamondoid non-linear optical chromophore patent to improve stability and performance of Lightwave's proprietary polymer materials for datacenter applications to address increasing generative AI demand across the internet.
- Achieved world-class performance of the company's Perkinamine® EO polymer material operating in an optical interconnect link, at 437.1Gbps employing a PAM8 178GBaud signal encoded by a plasmonic Mach Zehnder modulator (MZM).
- Invited to present the company's latest polymer results at the 2024 International Optical Fiber Conference (OFC) in San Diego, California.
- As of March 31, 2024, the company had cash and cash equivalents of $31.5 million, enabling the company to finance operations through August 2025.
- Invited to speak at leading industry and investor conferences internationally, including the 36th Annual ROTH Conference, LD Micro New York Invitational XIV, and the Sequire Puerto Rico Investor Summit

The full text of the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2024 was filed with the SEC on May 10, 2024 and can be found here.

Management Commentary

"The first quarter of 2024 demonstrated our continued leadership in the photonics industry with world class performance for our technologies and critical contributions to the new global integrated photonics industry roadmap," said Dr. Michael Lebby, Chairman and Chief Executive Officer of Lightwave Logic. "These accomplishments serve as highlights for ongoing engagement with a wide spectrum of companies to discuss additional licensing agreements for our EO polymer materials, including innovative start-ups, existing OEMs and tier-1 multinational corporations that have optical network systems businesses designed to address emerging applications including generative AI.

"The latest world-class performance of our Perkinamine® EO polymer material was recently achieved operating in an optical interconnect link, at 437.1Gbps employing a PAM8 178GBaud signal encoded by a plasmonic Mach Zehnder

modulator (MZM). The data center industry is currently focused on exceeding 200Gbps per lane, primarily driven by generative AI opportunities. 200Gbps per lane with 4 lanes is a current interest for 800Gbps pluggable transceiver manufacturing, which our company's EO polymers have easily achieved. This world-class result, achieving data rates of 400Gbps per lane, demonstrates that our company's EO polymers are capable of exceeding double the current industry expectation. This has the potential to enable 4 channel 1.6Tbps (1600Gbps) pluggable transceiver modules, which is on the roadmap of datacenter operators today.

"At the 2024 Optical Fiber Conference (OFC) we discussed more world-class results based on a novel packaged heterogeneous polymer EO modulator design leveraging silicon photonics devices from a 200mm production foundry process and our proprietary high temperature, high performance EO polymer material. Each modulator was operated at 100GBaud PAM4 and achieved all drive voltages below 2V, and as low as 1V, which is excellent for low power operation. This demonstrates that a hybrid approach, leveraging the cost and integration benefits of silicon photonics along with the unparalleled bandwidth and low power advantages of our proprietary EO polymers, lays a clear path for competitive performance and integration for today's and future optical pluggable transceivers. These results will position us to support the burgeoning demand of generative AI as datacenters around the world begin to upgrade their hardware faster than expected to meet the demands of the future.

"A new patent during the quarter advances the overall performance of our EO chromophores and their use in high-speed, low power and commercial-grade EO polymer modulators. The proprietary chromophores are designed with Diamondoid molecular groups that are attached to the chromophore. Results show that when these chromophores are dispersed in a host polymer matrix, the EO materials result in improved macroscopic EO properties, increased poling efficiency, increased loading as well as increased stability of these materials after poling. We see this material as a key component for next generation 800Gbps and 1600Gbps pluggable optical transceiver modules that further support the rise of generative AI and upgrading of datacenter hardware equipment.

"Highlighting our leadership position, we substantially contributed to the recently published "Integrated Photonics System Roadmap - International" (IPSR-I) to accelerate the high-volume commercial manufacturing of high-value integrated photonics over the next decade and beyond. The requirements included in the roadmap comprise the commercial factors that will compose and grow the accelerating photonics industry going forward for all companies, with our focus on our Perkinamine® Electro-Optic polymers. The integrated photonics roadmaps both plan and anticipate commercial opportunities as well as potential roadblocks and/or critical needs on the way to scaling the manufacturing of integrated photonics through 2040. The silicon semiconductor industry has relied on these types of roadmaps for the past 50 years and with IPSR-I, the photonics industry is becoming organized and more influential as well.

"Taken together, in our conversations with potential customers, we are highlighting how our polymers are fast, low power and robust in a smaller footprint. We are also providing reliability data and demonstrating our ability to produce at scale with our facilities expansion in 2023. Given our robust cash position with no debts - we believe that we are well positioned to serve as a value-added partner in the quarters and years to come. We hope many of you will join us at our Annual Shareholder Meeting on May 22, 2024 which will be followed by a tour of our Englewood facility and a device demonstration," concluded Lebby.

Benzinga All-Access Interview

Dr. Michael Lebby, Chairman and Chief Executive Officer of Lightwave Logic, will host a fireside chat at 10:50 a.m. Eastern time today with the hosts of the Benzinga All-Access show to discuss the Company's first quarter 2024 corporate updates, recent milestone achievements and potential near-term catalysts. To watch the interview, please refer to the access information below.

Benzinga All-Access Show
Date: Monday, May 13, 2024

Presentation Time: 10:50 a.m. Eastern time
Webcast: https://www.youtube.com/watch?v=h6CgGnM7R-c
An audio webcast and an archived replay will be available using the webcast link above.

About Lightwave Logic, Inc.

Lightwave Logic, Inc. (NASDAQ: LWLG) develops a platform leveraging its proprietary engineered electro-optic (EO) polymers to transmit data at higher speeds with less power in a small form factor. The company's high-activity and high-stability organic polymers allow Lightwave Logic to create next-generation photonic EO devices, which convert data from electrical signals into optical signals, for applications in data communications and telecommunications markets. For more information, please visit the company's website at www.lightwavelogic.com.

Safe Harbor Statement

The information posted in this release 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, lack of available funding; general economic and business conditions; competition from third parties; intellectual property rights of third parties; regulatory constraints; changes in technology and methods of marketing; delays in completing various engineering and manufacturing programs; changes in customer order patterns; changes in product mix; success in technological advances and delivering technological innovations; shortages in components; production delays due to performance quality issues with outsourced components; those events and factors described by us in Item 1.A "Risk Factors" in our most recent Form 10-K and 10-Q; other risks to which our company is subject; other factors beyond the company's control.

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