Lightwave Logic and Polariton Technologies Expand Technical Partnership to Accelerate Introduction of 400Gb/s per lane and beyond for AI and Datacenter Optical Links

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Combination of plasmonics and electro-optic polymers to eliminate limitations of legacy materials used for high-speed modulators

Lightwave Logic, Inc. (NASDAQ: LWLG), a technology platform company leveraging its proprietary electro-optic (EO) polymers to transmit data at higher speeds with lower power consumption, announced today the advancement of its technical collaboration with Polariton Technologies AG ("Polariton"), a technology leader of high-speed EO components for the communication market.

Lightwave Logic and Polariton will work together to jointly develop technical solutions to enable the faster adoption and integration of combined plasmonics and polymer-based products, with semiconductor fabrication plants, outsourced assembly, and test operations. In addition to manufacturing transmitter PICs with inherent superior electro-optic performance, both teams will be working together on an extensive qualification and reliability program, high-speed RF and optical testing and back-end manufacturing process integration.

Yves LeMaitre, Chief Executive Officer of Lightwave Logic, commented, "Today's announcement marks an important step forward in our partnership with Polariton. We are transitioning from being a material supplier to collaborating on market development through end-user engagement and technical cooperation. We are excited to supply our EO polymer materials and integration expertise enabling Polariton to develop a revolutionary approach addressing the opportunities presented by AI market."

Wolfgang Heni, co-founder and co-CTO of Polariton added, "The combination of our technologies creates a truly unique and differentiated technology platform addressing the size and performance demands of next-gen AI clusters and data centers. By combining plasmonics and EO polymers on silicon, we unlock the roadmap to modulator frequencies of 800 GHz in the future. We believe that using advanced materials in innovative ways is the key for silicon photonics to meet industry needs until 2030 and beyond."

The collaboration allows for the device integration of Lightwave Logic's high-performance electro-optic polymer materials with Polariton's plasmonic circuits to address the inherent bandwidth and form factor bottlenecks of traditional materials such as indium phosphide, silicon photonics, and thin-film lithium niobate to accommodate ultra-high bandwidths. The collaboration is focused on applications for next-generation AI clusters, intra and inter-datacenter and optical networking links to deliver 400 Gb/s per lane and scale to 800 Gb/s per lane. The ability to modulate the optical signal at 400 Gb/s and beyond is critical to achieve bandwidth of 3.2 and 6.4 Tb/s in the future.

Polariton has developed O-band products using Lightwave Logic's electro-optic polymer that are available for sampling with select customers.

About Lightwave Logic, Inc.
Lightwave Logic, Inc. (NASDAQ: LWLG) www.lightwavelogic.com is a technology platform company 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 it to create next-generation photonic EO devices that convert data from electrical signals into light/optical signals for applications in telecommunications, and for data transmission potentially used to support generative AI.

About Polariton Technologies, AG
Polariton is a designer and manufacturer of high-performance photonic integrated circuits (PICs) for ultra-high-bandwidth and low-power applications in communication, computing, test & measurement, space and quantum technologies markets. Exceptional specifications are achieved by combining silicon photonics with advanced plasmonic active devices enabling operation in sub-THz regimes, in particular with Mach-Zehnder and ring resonator modulators.

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