

# Cutting-edge photonics for optical data transmission with Picosun's ALD solutions

**ESPOO, Finland, 30<sup>th</sup> March 2020** – Picosun Group reports excellent results in development of state-of-the-art photonics with its ALD (Atomic Layer Deposition) equipment and solutions.

Photonic devices such as waveguide amplifiers and lasers are central components in optical data transmission, a key technology realizing our modern, connected, information-driven society.

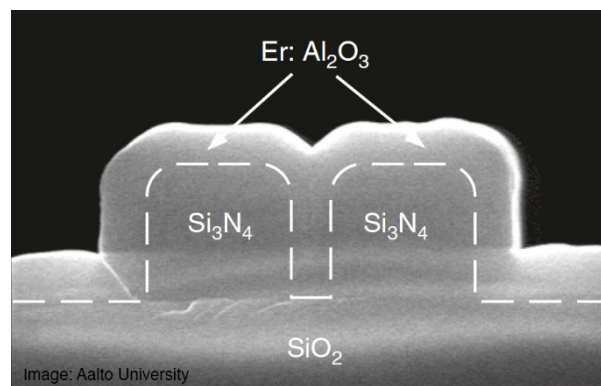
Silicon-integrated photonics take the technology one step further, enabling a whole new generation of microelectronics where optical solutions overcome some of the key challenges of conventional technologies.

Erbium-doped waveguide amplifiers and lasers are the most potential candidates for signal generation and amplification for telecommunication wavelengths. To reach the maximum performance of these devices, the amount and spatial distribution of dopant erbium atoms in the host material must be carefully optimized and controlled. This is where ALD shows its unique strength and beauty.

At Aalto University, Finland, Picosun's customer Prof. Zhipei Sun's group at the Finnish national infrastructure Micronova, and his international collaborators, have now used Picosun's ALD technology to manufacture erbium-based silicon-integrated waveguide amplifiers with world-record performance<sup>(\*)</sup>.

"Silicon-integrated photonics, already employed by the leading companies in the field, are the future of microelectronics. We are very pleased of the performance of our PICOSUN® ALD equipment and the excellent quality of the Er:Al<sub>2</sub>O<sub>3</sub> waveguide amplifiers manufactured with it. Customer support and consultancy from Picosun have always been there when we need it. ALD process is CMOS-compatible, further facilitating the integration of our waveguides into commercial chip production," states Dr. John Rönn, the leading author of the results, from the Department of Electronics and Nanoengineering at Aalto University.

"ALD has been enabling disruptive future technologies since its invention. Picosun is happy to work with the leading experts in the field, such as our esteemed customers at the Aalto University. Our ALD solutions provide them the means to realize their groundbreaking work to develop yet more advanced



communications and data transmission technologies for more connected, open, and integrated global society,” continues Mr. Edwin Wu, CEO of Picosun Asia Pte. Ltd

(\*) The results were published in the journals [ACS Photonics 3, 2040-2048 \(2016\)](#) and [Nature Communications 10, 432 \(2019\)](#).

*Picosun provides the most advanced AGILE ALD® (Atomic Layer Deposition) thin film coating solutions for global industries. Picosun’s ALD solutions enable technological leap into the future, with turn-key production processes and unmatched, pioneering expertise in the field – dating back to the invention of the technology itself. Today, PICOSUN® ALD equipment are in daily manufacturing use in numerous leading industries around the world. Picosun is based in Finland, with subsidiaries in Germany, North America, Singapore, Taiwan, China, Korea, and Japan, offices in India and France, and a world-wide sales and support network. Visit [www.picosun.com](http://www.picosun.com).*

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