Lumerical Solutions and Sandia National Laboratories Collaborate to Advance Photonic Integrated Circuit Design and Manufacture

Lumerical and Sandia will develop a library of calibrated photonic integrated circuit simulation models improving the ease and reliability of silicon photonics design and fabrication

Vancouver, B.C. (PRWEB) June 18, 2015 -- Lumerical Solutions, Inc., a global provider of photonic design software, and Sandia National Laboratories are collaborating to develop a calibrated compact model library (CML) for Sandia’s silicon photonics manufacturing process. As an integral part of Sandia’s silicon photonics process design kit (PDK), the calibrated CML will enable designers to simulate the performance of photonic integrated circuits to be fabricated with Sandia’s silicon photonics manufacturing process.

Silicon photonics holds the potential to become a cost-effective, scalable technology for the production of photonic integrated circuits to address applications including high-performance optical networking, data center interconnects, signal processing, and biological and chemical sensing. A comprehensive PDK that includes accurate simulation circuit element models is critical to enabling a design methodology that ensures predictable operation and reliable, repeatable fabrication of complex PIC designs for these demanding applications.

“Real technical interactions between well-known photonics design tool companies like Lumerical and US manufacturing foundries benefits our mandate to explore how photonics can improve performance and reduce energy utilization in metro and data center networks,” stated Dr. Nasser Peyghambarian, Professor of Optical Sciences at the University of Arizona and Director of the National Science Foundation funded Engineering Research Center for Integrated Access Networks (CIAN). “This collaboration enables photonic designers and researchers everywhere to leverage the component knowledge developed by Sandia and CIAN researchers to rapidly and accurately design and simulate increasingly complex silicon-based photonic integrated circuits.”

In October 2014, President Obama announced funding for the Institute for Manufacturing Innovation on Integrated Photonics (IP-IMI) to create “an end-to-end integrated photonics manufacturing ecosystem in the U.S.” Lumerical and Sandia’s collaboration to develop a calibrated CML directly addresses some of the key challenges facing that initiative, including the need for integrated design tools for efficient simulation and design of integrated photonic circuits, and the need for an accessible domestic photonics device foundry service. The combination of Lumerical’s suite of photonic design tools and Sandia’s foundry services for US national security missions enable photonic designers to innovate in the field of integrated photonics.

Rick McCormick, Senior Manager of Microsystems Process S&T at Sandia commented, “The IP-IMI will accelerate the impact of photonics on information, communication, and sensing technologies, including those in many national security applications. Sandia is committed to supporting the success of this Institute and we welcome this collaboration with Lumerical to advance the photonic design ecosystem.”

“This is an exciting time in the field of silicon photonics and there is much talk about the potential of the technology across a wide array of applications,” stated Bill De Vries, Director of Product Marketing at Lumerical. “Our collaboration with Sandia aims to create the design ecosystem necessary to ensure integrated photonics reaches its full commercial potential.”

Lumerical provides software tools and engineering expertise to help foundries develop, maintain and enhance a
calibrated compact model library for their photonics PDK. To learn more, visit www.lumerical.com/foundry.

About Lumerical

Since its inception in 2003, Lumerical has pioneered breakthrough simulation technologies that help bring new product concepts to life. Our photonic design tools are licensed in nearly 50 countries around the world by the world’s most innovative organizations, including 7 of the top 10 companies in the S&P 1200 Global IT Index and 44 of the top 50 research universities according to the Times Higher Education rankings. Discover how Lumerical can help you meet your own design objectives by visiting us online at www.lumerical.com.

About Sandia National Laboratories

Sandia National Laboratories is a multi-program laboratory operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corp., for the U.S. Department of Energy’s National Nuclear Security Administration. With main facilities in Albuquerque, N.M., and Livermore, Calif., Sandia has major R&D responsibilities in national security, energy and environmental technologies and economic competitiveness. Sandia has extensive capabilities in design, fabrication, characterization, and packaging of photonic components. To learn more about Sandia’s areas of expertise in photonics and MPW process for integrated silicon photonics, please visit www.sandia.gov/mstc/IPIMI.
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