

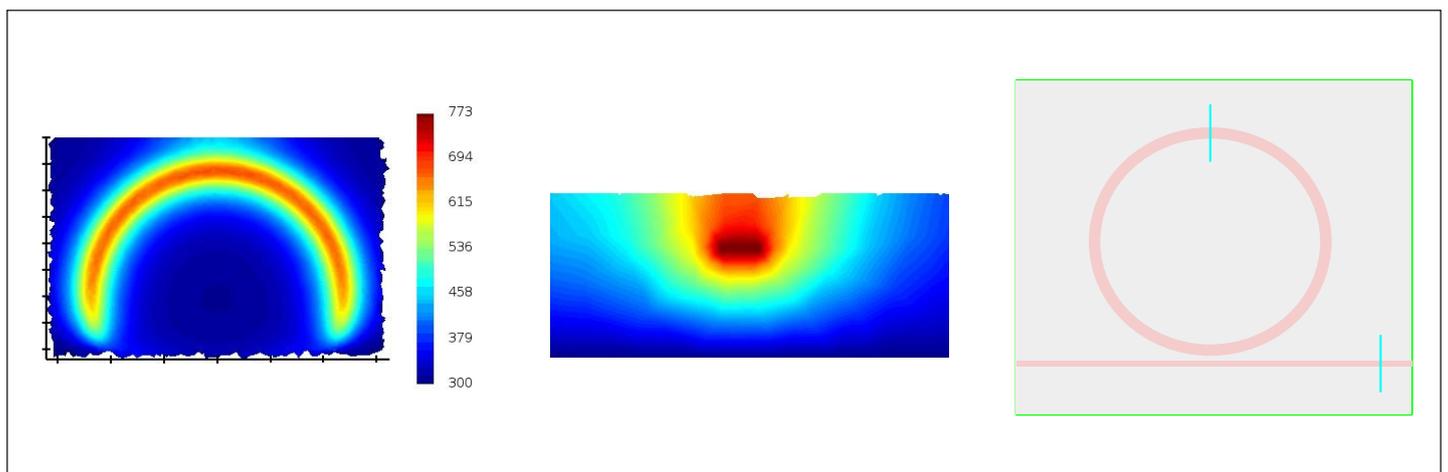
LIGENTEC delivers next-generation heater module for its All-Nitride process with Lumerical's DEVICE Suite

LIGENTEC's advanced heater module provides 4 times more thermo-optical tuning and improved stability for tunable ring resonators and Mach Zehnder Interferometer (MZI) than standard heaters in SiN. The newly available heater module is optimized for LIGENTEC's all-nitride AN800 process with waveguides that offer low bending radii (< 0.005 dB for 10 turns of 50um radius), low coupling losses (< 1 dB/facet), low propagation losses (< 0.1 dB/cm) and high power handling (up to 10 W tested). Designed using Lumerical's DEVICE Suite, LIGENTEC's heater module is responsive and stable over an ultra-broad tuning range. For example, a ring resonator with a free spectral range (FSR) of 500 GHz (resonance separation of 4 nm) can be tuned by more than 4 nm operating at telecom wavelength range and thus covering a full tuning of the FSR. Similarly for MZIs, multiple pi-phase shifts are possible.

LIGENTEC designed their heater module with Lumerical's DEVICE Suite, which performs multiphysics simulation of heat and electrical conduction, combined with photonics simulation, including relevant material models in each physical domain. It is an ideal platform for designing photonic integrated circuits (PICs)

targeted for LIGENTEC's All-Nitride (AN) process. "With its fast simulation performance and a high level of consistency with experimental data, Lumerical's DEVICE Suite enabled LIGENTEC to optimize the performance of its heater module saving time and money," says managing director Dr. Zervas. Lumerical's simulators allowed for the import of measured data into its material models to maximize simulation accuracy, which is especially important for next-generation processes. Due to the significantly low loss characteristic of LIGENTEC's AN core technology, the fidelity of imported material data is critical to simulation quality.

With its HEAT and CHARGE solvers, Lumerical's DEVICE Suite provides multiphysics simulation capabilities and workflows to model the interaction between optical, electrical and thermal effects at the physical level. HEAT provides designers with comprehensive 3D finite element thermal modeling capabilities, including self-consistent simulation of heat sources driven by electrical currents. By incorporating accurate spatial variations of temperature into the optical material models for photonic simulations, designers can engineer optical components with robust and stable responses of over the full range of operating conditions.



About Lumerical

Lumerical develops photonic simulation software – tools which enable product designers to understand light, and predict how it behaves within complex structures, circuits, and systems. Since being founded in 2003, Lumerical has grown to license its design tools in over 50 countries and its customers include 10 of the top 15 companies in the S&P 1200 Global IT index, and 46 of the top 50 research universities as rated by the Times Higher Education rankings. Lumerical's substantial impact on the photonic design and simulation community means its tools are among the most widely cited in the scientific press, with references in more than 10,000 scientific publications and patents. Lumerical enables its customers to achieve more with light and establish a leading position in the development of transformative technologies employing photonics.

www.lumerical.com

Contact

Rich Goldman
rgoldman@lumerical.com
+1 604 733 9006



About LIGENTEC SA

LIGENTEC is your manufacturing partner for low loss Photonic Integrated Circuits for customers in high-tech areas such as integrated quantum optics, LiDAR, sensors and microwave photonics. LIGENTEC commercializes all-nitride-core technology awarded with the PIC award at PIC International 2018. The technology uses thick film optical grade LPCVD deposited silicon nitride and optimized cladding to provide guaranteed performance in propagation loss. With the all-nitride (AN) technology LIGENTEC enables the customers to develop their products in the industrial revolution 4.0. The customers benefit from a clear path to volume production while obtaining the small quantities of wafers with the performance, short turn around of 2 month and high yield required at the early stage of proof of concept.

www.ligentec.com

Contact

Belen Lopez-Fuchet
belen.lopez-fuchet@ligentec.com

