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BluGlass to contribute laser diode development to Yale University for US Defense Advanced Research Projects Agency (DARPA) program

- BluGlass and Yale University (Yale) are working together on the *Lasers for Universal Microscale Optical Systems (LUMOS)* research program funded by the US *Defense Advanced Research Projects Agency* (DARPA)
- BluGlass is supplying custom GaN laser diodes and laser epitaxial wafers to Yale for incorporation into a photonic integrated circuit (PIC). The BluGlass epiwafers will pump a novel Yale laser design which is to be fabricated under the program
- The first of a three-phased program is scheduled to last 18 months

Australian semiconductor technology developer, **BluGlass Limited (ASX:BLG)** has today announced that it has received a US government-funded subaward contract from Yale University to assist the US Defense Advanced Research Projects Agency (DARPA) to develop novel laser diode technology.

BluGlass and Yale University will conduct paid research and development under DARPA's *Lasers for Universal Microscale Optical Systems (LUMOS)* initiative which seeks to combine efficient integrated optical systems and complete photonics functionality onto a single substrate.

Part of the U.S. Department of Defense, DARPA pursues opportunities for transformational change rather than incremental advances. It does so collaboratively as part of a robust innovation ecosystem that includes academic, corporate, and governmental partners. To fulfill its mission, the Agency relies on diverse performers from throughout this ecosystem to apply multi-disciplinary approaches to both advance knowledge through basic research and create innovative technologies that address current and predicted practical problems through applied research.

Lasers are essential for optical communications, remote sensing, manufacturing, and medical applications. Photonic integrated circuits have allowed unprecedented advances in optical systems for a wide range of applications, including LiDAR, signal processing, chip-scale optical clocks, gyros, and data transmission. However, these two technologies are currently limited by the incompatibility of the materials used to create them – silicon photonics are easy to manufacture but are poor light emitters while compound semiconductors enable efficient emitters but are difficult to scale for use in complex integrated circuits.

Together, Yale and BluGlass research teams are aiming to combine for the first time, these two technologies to enable high performance lasers and amplifiers with photonic integrated circuits in a single device for applications such as compact optical phased array LiDAR and neuromorphic optical computing. BluGlass' unique technology capabilities provide increased design and manufacturability options to combine nitrides and photonic integrated circuits.

BluGlass Executive Vice President, Brad Siskavich, said today "We are very excited to be part of the team selected to contribute to the DARPA LUMOS program; and to integrate BluGlass' novel laser diode technology into the Yale design for new and important laser applications. This opportunity allows BluGlass to showcase our capabilities in GaN Laser epitaxial growth technology, while demonstrating the integration of our technology into next generation laser applications such as Photonic Integrated Circuits, that could lead to further commercial opportunities."

This announcement has been approved for release by the board.

About BluGlass

BluGlass Limited (ASX: BLG) is a global leader commercialising a breakthrough technology using Remote Plasma Chemical Vapour Deposition (**RPCVD**) for the manufacture of high-value semiconductor devices such as **laser diodes**, next generation **LEDs** and **microLEDs**. BluGlass has invented a new process using RPCVD to grow advanced materials such as gallium nitride (GaN) and indium gallium nitride (InGaN). These materials are crucial to the production of high-efficiency devices used in next-generation devices from lighting, displays, virtual reality systems and industrial cutting and welding.

RPCVD's unique low temperature, low hydrogen growth platform offers many potential benefits to electronics manufacturers over existing growth techniques; including higher efficiency, lower cost, greater substrate flexibility and has the potential to enable novel applications.

In 2019, BluGlass launched its direct-to-market Laser Diode business unit to exploit its unique tunnel junction technology capability in the high-value and high-margin laser diode market. BluGlass expects to launch its first laser diode commercial product in 2021. **Contact**: Stefanie Winwood +61 2 9334 2300 swinwood@bluglass.com.au