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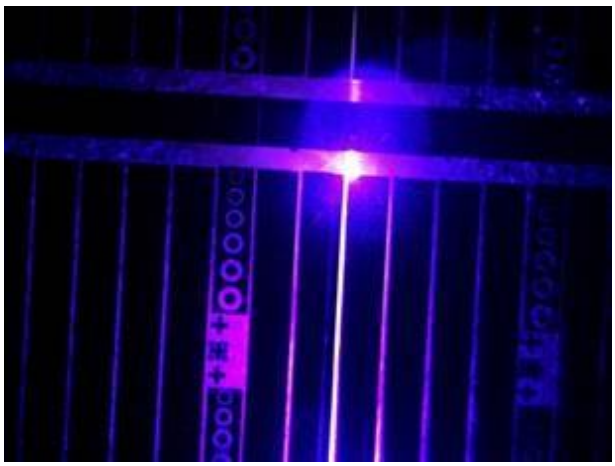
BluGlass presents RPCVD paper at SPIE Photonics West

Key Points

- BluGlass presents new paper at SPIE Photonics West in San Francisco, USA
- RPCVD GaN tunnel junction laser diode structures show scope for significant conversion efficiency improvements in simulation results
- RPCVD tunnel junction data for LEDs demonstrate strong promise to enable these improved laser diode structures that meet strict growth requirements, not available using industry standard processes

Australian semiconductor developer BluGlass Limited (ASX: BLG) has today presented a new paper at **SPIE Photonics West** in San Francisco, USA (www.spie.org), the leading global event for the photonics and laser industries. The paper presents BluGlass' recent laser diode (LD) development work, utilising the company's unique 'active-as-grown' (AAG) tunnel junctions to improve conversion efficiency in lasers.

BluGlass Head of Epitaxy, Dr Josh Brown presented the paper titled '*High Brightness-MOCVD Laser Diodes using RPCVD Tunnel Junctions'* on the benefits of BluGlass' proprietary Remote Plasma Chemical Vapour Deposition (RPCVD) and tunnel junction technologies for the manufacture of laser diodes.



RPCVD offers laser diode manufacturers a number of performance and cost advantages for the manufacture of high-brightness GaN laser diodes, including higher performing devices with reduced optical loss, and productivity and cost improvements.

RPCVD is a low-temperature, ammonia-free approach to GaN-based epitaxial growth, with advantages not possible with conventional metal-organic chemical vapour deposition (MOCVD).

One of these fundamental differences is BluGlass' unique AAG tunnel junction capability. AAG tunnel junctions can enable novel laser diode structures to reduce the significant optical and resistive losses associated with GaN based laser diodes today.

Tunnel junctions in laser diodes can be used to replace the heavily lossy (optical and resistance) p-type layers (both the p-AlGaN cladding layer and the p-Ohmic contact layers) in the laser diode with significantly less lossy and less resistive n-type device layers.

High-brightness GaN laser diodes are used in a growing number of applications that include industrial lasers (cutting and welding), automotive and general lighting, displays, and life sciences.

The technical presentation outlines BluGlass' latest development including laser diode technical simulations, tests and preliminary experimental findings. These initial results demonstrate the technical promise of RPCVD tunnel junctions to realise novel higher-performing laser diode structures by reducing optical loss and series and contact resistance.

Next Steps

BluGlass is now working on combining the optimised tunnel junction structure with its laser diode structure to demonstrate the advantages of the tunnel junction laser over conventional LDs.

The initial results presented today at SPIE Photonics West demonstrate the technical promise of RPCVD tunnel junctions to provide the potential for an optimised tunnel junction laser diode to significantly reduce the power loss associated with Joule heating and to reduce the total optical loss. This provides a viable path to achieving large gains in GaN laser diode conversion efficiencies well beyond their current 45% limitations and closer towards the values currently only achievable in GaN LEDs.

The BluGlass team continues to improve laser diode performance with bespoke solutions for our existing customers, and we look forward to working with new laser diode developers to bring high-brightness RPCVD-enabled laser diodes to market across a number of applications.

BluGlass is also exhibiting at the SPIE Photonics West conference (Booth 4783), San Francisco 1-6 February at the Moscone Centre.

A copy of BluGlass' technical presentation and a short summary of the key technical results are available to download from our website here: www.bluglass.com.au/laser-diodes

This announcement has been approved for release by the directors of the Company.

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-performance LEDs and other devices. 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 such as power electronics and high-brightness (LEDs) used in next-generation vehicle lighting, virtual reality systems and device backlighting.

The RPCVD technology, because of its low temperature and flexible nature, offers many potential benefits over existing technologies including higher efficiency, lower cost, substrate flexibility (including GaN on silicon), and scalability.

For More Information Contact: Stefanie Winwood +61 2 9334 2300 swinwood@bluglass.com.au