The Manager
Markets Announcement Platform
ASX Limited

15th January 2013

BLUGLASS 2012 TECHNICAL REVIEW

BluGlass has achieved a number of significant technical milestones in the development of its Remote Plasma Chemical Vapour (RPCVD) process over the last twelve months. BluGlass now intends to share these results with the LED industry to discuss the potential for the RPCVD process to be adopted commercially. In order to facilitate these discussions, BluGlass today releases to the market a technical summary of the results achieved using the RPCVD process.

Technical Overview

In April 2012 the company succeeded in producing high quality crystalline gallium nitride (GaN) grown at low temperature on commercial MOCVD GaN templates.

Transmission Electron Microscopy (TEM) was used to show the quality and defect density of the material. This was done in order to illustrate the crystallinity and defect density of the RPCVD grown GaN layers as separate from the underlying GaN template.

Also in October 2012 the company announced the demonstration of n-GaN films with low impurities and with good electrical properties (see Table 1), equivalent to films grown using MOCVD. The Hall measurements are also supported by secondary ion mass spectrometry (SIMS) data, as measured by Evans Analytical, which showed doping levels of silicon equal to 2.2 x 10^{18} silicon atoms/cm^3 that corresponds well to the carrier concentration of 2.1x10^{18} /cm^3

as measured using Hall measurement. The other critical impurities C, H, and O were also measured by SIMS with levels of less than $1x10^{17}$ atoms/cm^3.

TABLE 1: Room Temperature Hall Measurement Results of an RPCVD n-GaN Film Grown on a Commercial GaN Template Compared to a Typical MOCVD Grown n-GaN Film

	TYPICAL MOCVD n-GaN	RPCVD n-GaN
Mobility	>= 250 cm^2/Vs	300 cm^2/Vs
For a Carrier Concentration of	$2x10^{18}$ /cm^3	$2.1x10^{18}$ /cm^3

FIGURE 1: TEM image of low defect content RPCVD n-GaN grown on a GaN template.

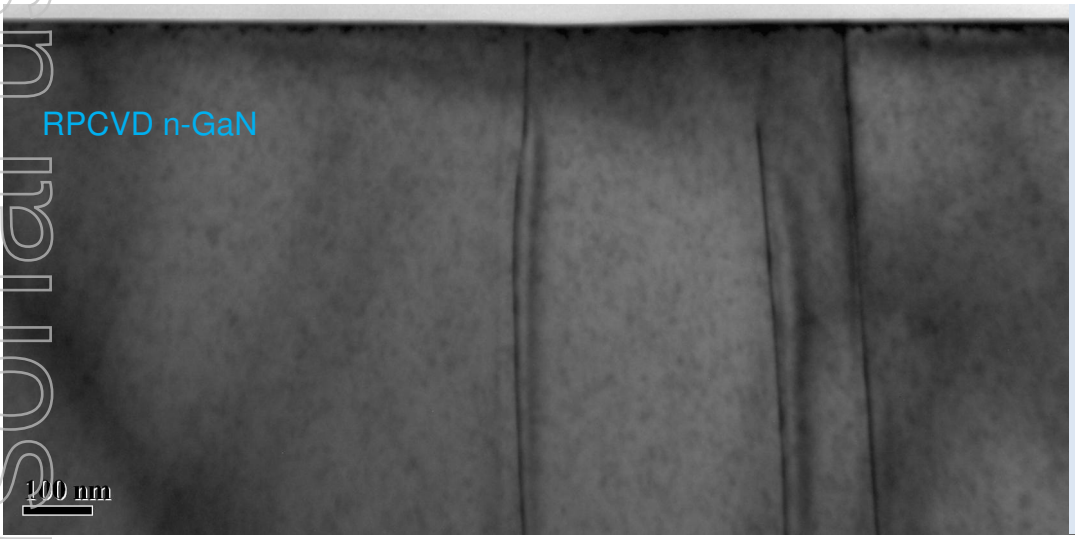

FIGURE 1:
Cross sectional TEM image of the sample of which the electrical and impurity data is reported.

In November 2012 BluGlass was also successful in its initial laboratory experiments in the development of p-GaN. A low temperature p-GaN layer was grown on a commercially grown MOCVD 456nm blue multi-quantum well structure. Preliminary testing has been carried out on the sample using a 0.5 mm diameter size p-type indium contact. The light output was measured with a UV-detector positioned under the wafer calibrated at the wavelength of the light emission.

- At 20 mA, 4.7V the light output was 270 µW (Light emission at 458 nm, FWHM of 19 nm)
- At 50 mA, 5.5V the light output was 1.23 mW (Light emission at 456 nm, FWHM of 18 nm)

The current was applied continuously for more than 60 minutes without the loss of function.

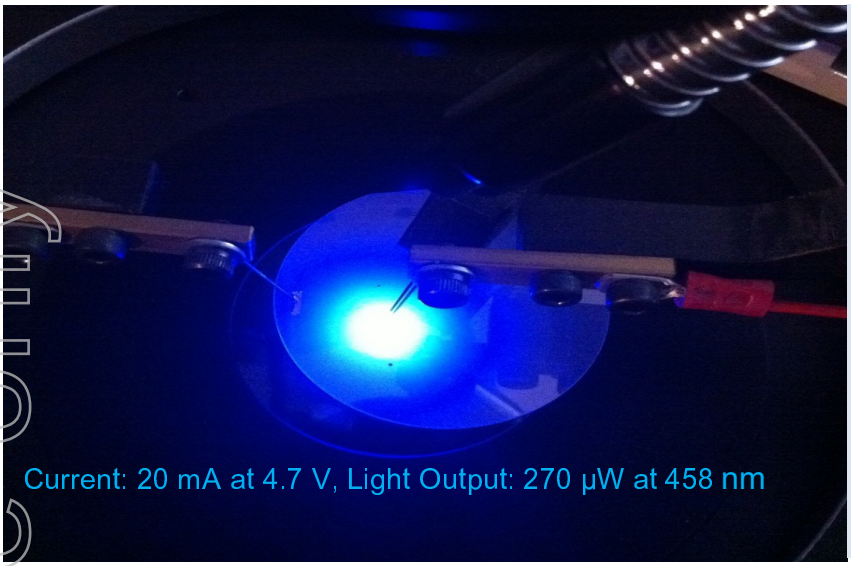

FIGURE 2: Demonstration of light emission from an RPCVD p-GaN layer grown on a MOCVD grown multi-quantum well structure.

Next Steps

BluGlass is now fully focused on taking our basic GaN deposition research into the next phase where we are working towards improving the device performance of LEDs through our low temperature technology offering. The next steps include process development and optimisation of p-GaN and p-AlGaN grown at low temperature. The initial goal will be to meet the industry standards for MOCVD grown p-GaN. We will then look to demonstrate the LED efficiency performance advantages of low temperature RPCVD grown p-GaN / p-AlGaN on MOCVD grown MQW / LED structures in order to quantify the value proposition of low temperature deposition. Once this has been achieved the company will commence the process of scaling the hardware and process to demonstrate commercial applicability.

In addition to the p-GaN technology development, BluGlass is also exploring the advantages of low temperature growth for GaN / Silicon and Indium-rich InGaN MQWs.

The Company is encouraged by the technical developments of 2012 and we look forward to keeping the industry and our investors up-to-date on future progress.

Giles Bourne
CEO
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