6 May 2009

Company Announcements Platform

Australian Stock Exchange Limited

BLUGLASS LIMITED SEEKS TO EXPAND MARKET POTENTIAL WITH EXPLORATION OF NITRIDE SOLAR CELLS

BluGlass Limited, a green technology company, today announced it intends to expand the market potential of its breakthrough semiconductor manufacturing technology, Remote Plasma Chemical Vapour Deposition (RPCVD) in the solar industry bringing group III nitride thin films, such as indium gallium nitride (InGaN), into the solar spotlight.

Although there are many materials from which solar cells can be developed, group III nitride semiconductors have many advantages over current materials making them an exciting prospect for new solar cell applications.

There is an emerging material family with the potential to convert almost the full spectrum of sunlight – from the infrared, visible and ultraviolet radiation – to electrical current. This material family is BluGlass' area of expertise - group III nitrides, specifically the indium gallium nitride (InGaN) alloy. InGaN solar cells, if successful, promise to be long lasting, relatively inexpensive and importantly, the most efficient ever created.

The potential comes from the fact that InGaN has a direct band gap with wide tunability. These properties allow more energy from the solar spectrum to be captured efficiently into the cell and converted to power. This is because a photon can only be efficiently absorbed into the semiconductor material if the photon energy is higher than the band gap of the semiconductor.

To date, solar cells have been capable of a maximum efficiency of 41.1%[1] and only in the most advanced laboratory technologies. Most commercial solar cells however are retailed at efficiencies between 5-

28%. This is due to the fact that commonly used materials either have a high or indirect band gap limiting their potential.

Research has stated that InGaN solar cells could produce efficiencies of more than 50%[2], which would be the biggest breakthrough in solar cell efficiency since its inception.

BluGlass Limited is an Australian company developing and commercialising a novel process called Remote Plasma Chemical Vapour Deposition (RPCVD) for the production of semiconductor thin films, such as gallium nitride (GaN) and indium gallium nitride (InGaN) for the production of light emitting diodes (LEDs). RPCVD has many advantages over current commercial processes; it is more environmentally sensitive and has significant low cost potential. More importantly, being a low temperature process, it is highly suitable for the growth of InGaN.

"A low temperature process, when it comes to growing InGaN is extremely important, as during the growth process the alloy's fragile bonds crack at high temperature leading to poor quality material. A low temperature process would allow indium rich, InGaN layers (the key component) to be grown" said CEO Giles Bourne today. Currently the standard nitride growth process, called Metal Organic Chemical Vapour Deposition (MOCVD), is reliant on extreme temperatures of over 1000ºC to achieve the active nitrogen species. BluGlass' process extracts the active nitrogen direct from a nitrogen plasma source which allows low temperature growth to be achieved.

InGaN also has superior resistance to energy radiation and high temperature tolerance. This would allow nitride solar cells to maintain high performance under extreme conditions including space applications such as powering satellites and space probes. Furthermore, the inherent scalability of the RPCVD process, which has been demonstrated growing gallium nitride for LED applications is another potential benefit of our process over current manufacturing methods.

"BluGlass now intends to explore RPCVD as a process for the development of thin film InGaN for the production of a high efficiency solar cell" continues Mr. Bourne. BluGlass already has a depth of experience growing GaN and InGaN using RPCVD. Our process evolved out of research at Macquarie University, where indium nitride growth was a core part of the program.

Following recent research on InGaN, BluGlass intends to develop a prototype high efficiency solar cell for industrial testing. We have already designed a solar cell structure that has been manufactured using the MOCVD process and turned into a device at BluGlass. This cell will be used as a benchmark for subsequent development work carried out on the RPCVD process.

'While solar applications are a natural progression for BluGlass as the RPCVD technology is well suited to these alternative applications, our LED business still remains our primary focus and we look forward to updating you on progress soon' finished Mr. Bourne.

About BluGlass: BluGlass Limited is an Australian Green Technology company developed to commercialise a breakthrough in the Semiconductor Industry. BluGlass has invented a new process using Remote Plasma Chemical Vapour Deposition (RPCVD) to grow semiconductor materials such as gallium nitride (GaN), crucial to the production of high efficiency devices such as next generation lighting technology, light emitting diodes (LEDs), at a fraction of the current cost. BluGlass is now exploring the processes viability in photovoltaic (solar) applications. The BluGlass process is a low temperature, low cost technology with inherent scalability.

Contact: All enquiries: Stefanie Winwood 02 9334 2302, 0433 307 853, swinwood@bluglass.com.au

REFERENCES

1. Compound Semiconductor, volume 15, number 2, page 9, 2009.
2. Jani *et al.* Applied Physics Letters 91, 132117-3 (2007).