

## **Crystal IS wins ATP 2007 award**

For release on Monday 10/1/07 – Crystal IS, Inc. of Green Island, NY has announced that it has won a \$2M award from NIST’s Advanced Technology Program (ATP) for the development of high performance deep ultraviolet (UV) light emitting diodes (LEDs) based on its low defect aluminum nitride (AlN) substrates. This award follows the recent successful completion of a previous ATP award to Crystal IS in 2004 for the development of 2-inch high quality AlN substrates.

Crystal IS’s previous ATP grant enabled the development of large diameter, high quality AlN boules and led to the release of the world’s first 2-inch bulk AlN substrates cut from these boules. Crystal IS has been supplying substrates for the development of a variety of products including blue and green laser diodes, UV LEDs and lasers and RF components on AlN and is now building up its manufacturing capability of its 2-inch product.

The new award is a 3-year contract for \$2M where Crystal IS will investigate the use of its AlN substrates in various crystallographic orientations to develop 280nm LEDs operating at high powers, with high efficiencies and long lifetimes. Crystal IS recently announced the expansion of its device development facility in Green Island, NY, led by Dr. Joseph Smart. “We are very excited to receive this award,” said Dr. Smart “which will allow us to explore new paths in the development of UV emitters.”

The field of ultraviolet (UV) processing and analytics has opened up many applications over the past several years in areas as wide-ranging as homeland security, water and air purification and UV curing of inks and polymers. However, market growth remains technology limited in many applications where a small, durable, mercury-free light source would be better suited. While LEDs are now commonplace in the visible spectrum, there remain significant challenges to developing cost-effective LEDs operating in the deep UV at wavelengths less than 320 nanometers. This ATP grant will allow Crystal IS to address these challenges through the use of novel materials, processing techniques and designs to produce high-efficient LEDs that operate in the deep ultraviolet.

Dr. Leo Schowalter, CTO said “we are honored to be chosen recipients of this highly prestigious award” and added that “we see this award as validation of our technology roadmap of using its AlN substrates for high performance deep UV emitters”.

CEO, Dr. Ding Day stated that this ATP award would further Crystal IS’s development of UV LEDs “which we expect will lead to a revolution in the use of solid-state UV emitters for water and air disinfection, homeland security and health care applications”. The market for UV LEDs and laser diodes is estimated to exceed \$1Bn within 15 years.

The ATP bridges the gap between the research lab and the market place, stimulating prosperity through innovation. Through partnerships with the private sector, ATP’s early stage investment is accelerating the development of innovative technologies that promise significant commercial

payoffs and widespread benefits for the nation. As part of the highly regarded National Institute of Standards and Technology, the ATP is changing the way industry approaches R&D, providing a mechanism for industry to extend its technological reach and push out the envelope of what can be attempted.

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