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Crystalplex CTO, Lianhua Qu, Ph.D., to present findings regarding a thermally processable quantum dot matrix

PITTSBURGH, July 28, 2016— Lianhua Qu, Ph.D., Chief Technical Officer of Crystalplex Corp. will present developments of a stable and resilient *Sapphire™* quantum dot matrix with optoelectronic applications at the 26th International Liquid Crystal Conference (ILCC), July 31 – August 5, 2016 at Kent State University in Ohio.

Dr. Qu, one of the most cited authors on the topic of fluorescent nanocrystals (quantum dots), is the presenting author for “Development of a Highly Stable and Thermally Processable *Sapphire™* Quantum Dot Polymer Matrix Using a Two Prong Approach” on Tuesday, August 2, 2016. Registered participants can also speak with Dr. Qu at the Crystalplex exhibition during the show.

Co-authored by Hunaid Nulwala of Liquid Ion LLC, Matt Bootman and Ken Acer, both of Crystalplex, the presentation will detail the beneficial properties of the newly developed supporting matrix which maintains optimal quantum dot (QD) spacing to maintain quantum efficiency.

The matrix attaches to the proprietary aluminum oxide outer coating of each QD. This optically transparent *Sapphire™* shell protects and isolates each QD from the degrading effects of humidity and oxygen, important to meet the demanding requirements of optoelectronic applications. Crystalplex Corp. has received a Notice of Allowance from the U.S. Patent and Trademark Office (USPTO) for this *Sapphire™* shell technology applicable in both cadmium-containing and new cadmium-free QDs.

The *Sapphire™* shell provides strong surface binding sites for custom polymers which have been synthesized at Crystalplex and Liquid Ion, leading to the efficient dispersion of QDs in a polymer matrix. Other supporting structures like fumed silica show promise for dispersing QDs in optical grades of silicone.

“I’m looking forward to sharing recent developments made by the Crystalplex team that enable polymer-QD composites to withstand thermoplastic injection molding and extrusion processes without a decrease in quantum efficiency or photostability of the nanocrystals,” said Dr. Qu. “We think

innovations like the *Sapphire*TM shell and our custom polymers provide many opportunities in the optoelectronic markets.” Dr. Qu holds a doctorate in physics from Jilin University in China and conducted post-doctoral research at the University of Arkansas and Emory University.

Crystalplex CEO Matt Bootman continued, “The development of thermoplastic polymers with QDs is certainly a breakthrough for us. Equally important are the QD/silica composites which have been successfully dispersed in two-part thermoset silicones, opening a world of possible applications in optoelectronics.”

Crystalplex Corp. is a private firm with 12 years of R&D directed to quantum dot technology. The company maintains a fully integrated synthesis and pilot application plant in Pittsburgh, PA, USA.

For more information about Crystalplex Corp.: www.crystalplex.com

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