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## News Release

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### **Ralph R. Dammel from Merck KGaA, Darmstadt, Germany, receives the Frits Zernike Award for Microlithography at SPIE 2015**

Darmstadt, Germany and San Jose, CA, USA, February 24, 2015 – Dr. Ralph R. Dammel, the former Chief Technology Officer at AZ Electronic Materials, now with Performance Materials Business of Merck KGaA, Darmstadt, Germany, has been honored with the Frits Zernike Award for Microlithography during a ceremony at SPIE Advanced Lithography 2015 on February 23<sup>rd</sup>, 2015. The Frits Zernike Award is given out annually for outstanding accomplishments in microlithographic technology, especially those furthering the development of semiconductor lithographic imaging solutions. Ralph Dammel's significant contributions on the development of photoresist, anti-reflective coatings, and directed self-assembly materials for semiconductor microlithography were highly recognized by the society, thus he was named the award recipient for 2015.

"I am surprised and honored to receive the prestigious Frits Zernike award from SPIE, and I am humbled to stand among all the great lithographers who have previously received it. They have shaped the semiconductor industry through their outstanding contributions. My thanks goes out to all colleagues and collaborators, who also share in the recognition given to me", stated Ralph Dammel after the ceremony. The Frits Zernike Award was presented to Dammel by 2015 Symposium Co-chair Bruce W. Smith from Rochester Institute of Technology at the opening meeting.

Ralph Dammel has published over 200 scientific papers in chemistry, microlithography and over 90 patent families in the field. His well-known book "Diazonaphthoquinone-based Resists" is used as the definitive textbook on this topic. Dammel had been with AZ Electronic Materials and its predecessors since 1986 in various technology functions,

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including Global R&D Director and Chief Technology Officer. Following the acquisition AZ Electronic Materials by Merck KGaA, Darmstadt, Germany, in 2014, Dammel will assume the position of Head of Technology Office Chemicals US to continuously dedicate his expertise in the developing areas of lithography and novel emerging technologies.

Ralph Dammel is an SPIE fellow, and has acted as instructor in multiple courses for the International Society for Optical Engineering (SPIE) and the American Chemical Society (ACS). He also received the Photopolymer Science and Technology Outstanding Achievement Award in June 2011.

Merck KGaA, Darmstadt, Germany, a leading provider of photochemicals and IC materials for the semiconductor industry, is present at the SPIE Advanced Lithography 2015 from February 22 – 26, 2015. Ralph Dammel and his R&D colleagues will unveil special topics on the latest DSA advancements, which will be reported in a total of eight presentations during the upcoming SPIE proceedings. The topics will explain progress in DSA defectivity, LER/LWR, templated DSA, chemoepitaxy DSA, high chi DSA, novel block-co-polymers and DSA integration.

SPIE is the international society for optics and photonics founded in 1955 to advance light-based technologies. The society serves nearly 235,000 constituents from approximately 155 countries, offering conferences, continuing education, books, journals, and a digital library to support of interdisciplinary information exchange, professional networking, and patent precedent.

All Merck KGaA, Darmstadt, Germany, press releases are distributed by e-mail at the same time they become available on the EMD Group Website. In case you are a resident of the USA or Canada please go to [www.emdgroup.com/subscribe](http://www.emdgroup.com/subscribe) to register again for your online subscription of this service as our newly introduced geo-targeting requires new links in the email. You may later change your selection or discontinue this service.

Merck KGaA of Darmstadt, Germany, is a leading company for innovative and top-quality high-tech products in healthcare, life science and performance materials. The company has six businesses – Biopharmaceuticals, Consumer Health, Allergopharma, Biosimilars, Life Science Tools and Performance Materials – and generated total revenues of € 11.1 billion in 2013. Around 39,000 employees work in 66 countries to improve the quality of life for patients, to foster the success of customers and to help meet global challenges. Merck KGaA, Darmstadt, Germany, is the world's oldest pharmaceutical and chemical company – since 1668, the company has stood for innovation, business success and responsible entrepreneurship.



Merck KGaA

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Holding an approximately 70% interest, the founding family remains the majority owner of the company to this day. Merck KGaA, Darmstadt, Germany holds the global rights to the Merck name and brand. The only exceptions are Canada and the United States, where the company operates as EMD Serono, EMD Millipore and EMD Performance Materials.

In 2014, Merck KGaA, Darmstadt, Germany, completed the acquisition of AZ Electronic Materials into its Performance Materials business sector, making it a leading solutions provider in the premium segment of high-tech materials and functional specialty chemicals. AZ now operates as a product brand under the Merck KGaA, Darmstadt, Germany, branding umbrella. AZ materials are widely used in integrated circuits and devices, flat panel displays, and light-emitting diodes.