

News Release

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EMD Electronics to Showcase Expertise at 2023 SPIE Advanced Lithography & Patterning

- **The Company's Top Engineers and Scientists to present novel developments in Extreme Ultraviolet (EUV) Lithography and Complimentary Directed Self-Assembly (DSA) Approaches**
- **Warren Montgomery Named 2023 SPIE Fellow Member**

Tempe, Arizona – EMD Electronics, the Electronics business of Merck KGaA, Darmstadt, Germany, in the US and Canada, will participate in the 2023 International Society for Optics and Photonics (SPIE) Advanced Lithography & Patterning conference at the San Jose McEnergy Convention Center, February 26th – March 2nd, 2023.

"We are honored to be participating in the 2023 SPIE Advanced Lithography & Patterning conference, an event organized by the renowned international society for optics and photonics technology, SPIE," said Anand Nambiar, Executive Vice President and Global Head of Semiconductor Materials. "EMD continues to value SPIE as the platform that provides us with the opportunity to share our advancements and insights with a wider audience, as well as to keep pace with the latest developments in the light-based fields of physics."

As a leader in the industry, EMD Electronics has a legacy that includes the very invention of photoresist materials. The company has the background, expertise, and know-how required to support a variety of pattern transfer needs. EMD Electronics offers a range of capabilities that include conventional lithography processes, Extreme Ultraviolet (EUV) lithography, and complementary Directed Self-Assembly (DSA) approaches, as well as the latest tools, talent, and expertise that allow for customized solutions to be developed that will set a new standard in the industry.



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Attendees of the conference are invited to visit EMD Electronics at the Welcome Reception, Mentor & Student Luncheon, and Career Networking Social, as well as to take part in various courses, technology and poster presentations that will be taking place throughout the event. Attendees may [locate additional details](#) and register via the schedule of the company's participation below to meet EMD Electronics representatives.

The conference will also serve as a platform to announce the recognition of Key Account Manager, Warren Montgomery, as a 2023 SPIE Fellow Member. This prestigious distinction acknowledges his significant contributions to the fields of optics, photonics, and imaging, and adds to the already existing recognition of Technology Fellow, Ralph Dammel, as an SPIE Fellow.

Warren, who has over 40 years of experience in the semiconductor industry and is known for his technical achievements such as the development of the SEMATECH Resist and Materials Development center and authorship of 35 patents and over 100 conference papers, has received numerous awards and honors, including IBM awards for material introduction, the SEMATECH Award for Resist Center Introduction, and the Best Paper award from Applied Materials. Additionally, Warren is known for his dedication to giving back to the optical community through his volunteer work and service to organizations such as SPIE, where he has held several committee and editorial positions and supported local schools and science fairs.

"Having two SPIE Fellow Members within our company is a testament to our commitment to excellence in optics, photonics, and imaging," said Nambiar. "Warren's recognition is a proud moment for us and reinforces our position as a prominent player in the industry and technology advancements."

Schedule of EMD Electronics Participation

Attendees may [locate additional details](#) and register via the schedule below.

Sunday, February 26

8:30 am – 5:30 PM PST, Course SC101

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Introduction to Microlithography: Theory, Materials, and Processing

Course led by: Ralph Dammel, Research Fellow and SPIE Fellow Member

Monday, February 27

6:00 pm – 7:00 pm PST

Sponsored SPIE Welcome Reception

12:30 pm – 1:30 pm PST

Sponsored Mentor & Student Luncheon

Wednesday, March 1

11:30 am – 12:30 pm PST

Sponsored Career Networking Social

1:50 pm – 2:10 pm PST, Paper 12498-37

Negative tone resists for EUV lithography

Presenter: Kun Si, Senior Research Scientist

3:10 pm – 3:30 pm PST, Paper 12497-30

EUV lithography line-space pattern rectification using block copolymer directed self-assembly: A roughness and defectivity study

Co-author: Boaz Alperson, Head of DSA Program

5:30 pm – 7:00 pm PST

Poster Session Reception

EMD Electronics Posters:

Paper 12498-63

Novel polymer design for ultra-low stress material for advanced packaging applications

Presenter: Matthias F. Koch, Associate Director

Paper 12498-46

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The novel materials for pattern growing on EUV resists

Presenter: Hiroshi Yanagita, Senior Scientist

Paper 12498-55

Profile control in conductor metal wet etch with advanced photoresists

Presenter: Ashley Moore, Research Scientist

Thursday, March 2

8:30 am – 12:30 pm PST, Course SC616

Practical Photoresist Processing

Course led by: Ralph Dammel, Technology Fellow and SPIE Fellow Member

11:50 am – 12:10 pm PST, Paper 12497-40

Advancing high-resolution photolithography with hybrid polymers for waferscale manufacture of micro-optics and patterned passivation layers

Presenter: Matthias F. Koch, Associate Director

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About Merck KGaA, Darmstadt, Germany

Merck KGaA, Darmstadt, Germany, a leading science and technology company, operates across life science, healthcare and electronics. More than 60,000 employees work to make a positive difference to millions of people's lives every day by creating more joyful and sustainable ways to live. From providing products and services that accelerate drug development and manufacturing as well as discovering unique ways to treat the most challenging diseases to enabling the intelligence of devices – the company is everywhere. In 2021, Merck KGaA, Darmstadt, Germany, generated sales of € 19.7 billion in 66 countries.

The company holds the global rights to the name and trademark "Merck" internationally. The only exceptions are the United States and Canada, where the business sectors of Merck KGaA, Darmstadt, Germany, operate as MilliporeSigma in life science, EMD Serono in healthcare and EMD Electronics in electronics. Since its founding in 1668, scientific exploration and responsible entrepreneurship have been key to the company's technological and scientific advances. To this day, the founding family remains the majority owner of the publicly listed company.