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The Diana Nyyssonen Memorial Award for Best Paper

Diana Nyyssonen was a pioneer of dimensional metrology in microelectronics.

Through her work at the National Bureau of Standards (NBS), she discovered the resolution of metrology with a microscope is much better than classical limits. Diana developed numerical models and became the first to make model-based measurements on photomasks, establishing the earliest critical dimension standards for our industry and the foundations of model-based metrology. Her work on optical edge detection and the imaging of thick layers, and advocacy for detailed modeling of the metrology process itself, invigorated dimensional metrology. She started the SPIE conferences on Integrated Circuit Metrology in Arlington, VA in 1982.

Diana left NBS to form her own metrology company and later joined IBM at East Fishkill, NY. Her attention shifted from conventional microscopy to phase and amplitude imaging with interference microscopy. She also modeled secondary electron images for low voltage CD-SEM, and defined the requirements for AFM tips and sensing methods to enable CD-AFM.

Diana received her Ph.D. from the Institute of Optics, University of Rochester. Her personal contributions to the field and her many collaborations with metrology vendors, standards laboratories, consortia and academia, accelerated and broadly influenced the development of technology infrastructure and metrology applications.

As a part of the SPIE Advanced Lithography Symposium, the Metrology, Inspection and Process Control conference is the leading international forum for the discussion and presentation of technical advances in the broader field of semiconductor metrology. The Diana Nyyssonen Memorial Award for the Best Paper at this conference was established to recognize the most significant current contribution to semiconductor manufacturing and metrology for process control.

Due to the conference's long history, significant attendance, and high paper counts, to win this award requires a very significant new contribution to the field. The selection of the best paper is initiated during the conference by nomination, followed by extensive review by the program committee. It is based on both the technical merit and persuasiveness of the oral presentation as well as the overall quality of the published paper. Recent winners include leading international researchers in the area of semiconductor metrology and process control whose contributions have fundamentally improved the way semiconductors are manufactured.

We are pleased to honor the winners of the Diana Nyyssonen Memorial Award for the Best Paper of 2009, as well as those who have won in previous years.

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