



SEMI AWARDS HONOR PROCESS AND TECHNOLOGY INTEGRATION ACHIEVEMENTS

Jan 13, 2016

Awards presented to Chenming Hu, Alex Lidow, and Intel staff for groundbreaking semiconductor developments

SAN JOSE, Calif. — January 13, 2016 — SEMI today announced the recipients of the 2015 SEMI Awards for the Americas. The awards honor Chenming Hu for the BSIM families of compact transistor models, Alex Lidow for commercialization of GaN power devices, and an Intel team for implementation of bulk CMOS FinFET production. The awards were presented at the 2016 SEMI Industry Strategy Symposium (ISS) yesterday in Half Moon Bay, Calif.

Some innovations become such an integral part of the semiconductor manufacturing industry's infrastructure that the technology itself becomes fundamental. 2015 award recipients all share the distinction of having pioneered processes and integration breakthroughs that became ubiquitous.

For developing the Berkeley Short-channel Insulated-gate FET Model (BSIM) families of compact transistor models, enabling worldwide adoption of advanced device technologies, Professor Chenming Hu was presented with the 2015 Americas SEMI award. Analog circuit simulators, such as Simulation Program with Integrated Circuit Emphasis (SPICE), form the foundation for circuit simulators used in integrated circuit design, and compact transistor models are the heart of simulators. BSIM3 and its successors, developed in the BSIM group at University of California Berkeley under the leadership of Professor Hu, are the industry standard for transistor modeling. For the past 20+ years, all commercial circuit simulators have included BSIM models.

The Americas SEMI award was presented to Dr. Alex Lidow, Ph.D., for innovation in power device technology enabling commercialization of GaN devices with performance and cost advantages over silicon. Silicon-based devices were reaching their limits in speed and efficiency, prompting Lidow to develop Gallium Nitride (GaN) technologies, but high cost limited its commercial success. Lidow led the GaN development activity at International Rectifier and continued that work at Efficient Power Conversion Corporation (EPC), a company he co-founded in 2007. EPC introduced the first commercial enhancement mode GaN power transistors in 2009. Challenges from resolving packaging limitations to establishing a low-cost supply chain were overcome through persistence, paving the way for the successful commercialization of GaN power devices.

An Intel development team — Christopher P. Auth, Robert S. Chau, Brian S. Doyle, Tahir Ghani and Kaizad R. Mistry — were honored with SEMI Awards for the first development, integration and introduction of a successful bulk FinFET technology for CMOS IC production, first implemented at the 22nm node in 2011. The successful introduction of a bulk FinFET process in commercial IC logic and I/O devices, aided by support from SEMI member companies with development of advanced materials, processes and production tools, was a critically important milestone, which led to the widespread adoption of bulk FinFETs as the technology of choice of leading-edge, fully-depleted CMOS logic devices.

"It is a great privilege to present the 2015 SEMI Awards to these fine technologists, and it is an honor to recognize their contributions to the advancement of technology. It's innovators like these that propel the industry forward and I thank them for their leadership," said Karen Savala, president, SEMI Americas.

"The 2015 SEMI Awards recognize contributions in modeling and simulation as well as successful commercialization of new types of logic transistors and power devices," said Bill Bottoms, chairman of the SEMI Award Advisory Committee. "These important milestones played an enabling role in maintaining the rate of progress in size, cost, performance and efficiency of semiconductor devices and accelerated the commercialization of new device types for logic and power."

The SEMI Award was established in 1979 to recognize outstanding technical achievement and meritorious contribution in the areas of Semiconductor Materials, Wafer Fabrication, Assembly and Packaging, Process Control, Test and



At the Industry Strategy Symposium on January 12, 2016, three honorees received their SEMI Awards (left to right): Alex Lidow, Chenming Hu, and Robert S. Chau (on behalf of Intel team).

Inspection, Robotics and Automation, Quality Enhancement, and Process Integration.

The award is the highest honor conferred by SEMI. It is open to individuals or teams from industry or academia whose specific accomplishments have broad commercial impact and widespread technical significance for the entire semiconductor industry. Nominations are accepted from individuals of Americas-based member companies of SEMI. For a list of past award recipients, visit www.semi.org/semiaward.

About SEMI

SEMI is the global industry association serving the electronics manufacturing supply chains. Our 1,900 SEMI member companies are the engine of the future, enabling smarter, faster, and more economical products that improve our lives. Since 1970, SEMI has been committed to helping members grow more profitably, create new markets, and meet common industry challenges. SEMI maintains offices in Bangalore, Beijing, Berlin, Brussels, Grenoble, Hsinchu, Moscow, San Jose, Seoul, Shanghai, Singapore, Tokyo, and Washington, D.C. For more information, visit www.semi.org.

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