



Your contact

Nina Diergardt  
Phone +49 6151-72 7589

## Press release

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### **Merck KGaA, Applied Materials and Braunschweig University Awarded Funding for OLED Research by German Government**

Darmstadt, November 17, 2009 – Merck KGaA, Applied Materials, Inc. and Braunschweig University of Technology (TU-BS) today announced that they have been awarded a grant by the German Federal Ministry of Education and Research (BMBF) to develop processes to lower the cost of manufacturing organic light-emitting diode (OLED) lighting. Applied Materials will spearhead the three-year project, named Light InLine (LILi), joining forces with Merck, a leading manufacturer of high-performance OLED materials and TU-BS, an internationally recognized center for OLED research. Work on the LILi project will be centered at the advanced development facility of Applied Materials in Alzenau, Germany.

Fabricated on sheets of glass, OLED tiles can emit white light that is brighter, more uniform and more energy-efficient than fluorescent light fixtures, making them well-suited for ceiling lights in homes and offices. Obstacles to be overcome before this technology can be widely adopted include limited lifetime, lack of standardization and high costs. The LILi project aims to address these challenges by developing large-area manufacturing processes using high-performance organic materials and efficient device design.

“Merck has a wealth of experience in developing and scaling up the complex organic compounds that are essential for stable and cost-effective OLED manufacturing,” said Dr. Udo Heider, Vice President Liquid Crystals/ OLED, Merck KGaA. “The LILi project is a great opportunity for us to test new organic materials in state-of-the-art manufacturing equipment in order to validate their stability and performance on large-area substrates.”

“Solid-state lighting is an important component of an energy-efficient future,” said Dr. Mark Pinto, Senior Vice President, Corporate Chief Technology Officer and General

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#### Merck KGaA

Public Relations Chemicals  
Communication Chemicals  
Frankfurter Straße 250  
64293 Darmstadt/ Germany

Phone: +49 (0)6151 72-7589  
Fax: +49 (0)6151 72-3895  
E-mail: [chemcom@merck.de](mailto:chemcom@merck.de)  
Internet: [www.merck-chemicals.com](http://www.merck-chemicals.com)



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Manager of Applied Materials' Energy and Environmental Solutions Organization. "OLED technology aligns well with our equipment used for manufacturing flat panel displays. We've already configured a system that is now in pilot manufacturing at a leading European lighting manufacturer. Through the LILi project we expect to further optimize this technology to raise the quality and drive down the cost for OLED lighting applications."

"Innovation in OLED technology is one of the primary focuses of our institute," said Professor Wolfgang Kowalsky from TU-BS. "We're pleased to partner with Merck and Applied Materials to evaluate how our new high-efficiency OLED lighting device structures will perform in an industrial-scale environment."

The total costs of the OLED project will amount to around € 7.49 million. The German Federal Ministry of Education and Research will provide funding of around € 3.26 million; the industry partners will contribute around € 4.23 million. The grant (FKZ 13N10611) is part of the BMBF's "OLED 2 – Organic Light-emitting Diodes - Phase 2" initiative, which seeks to support OLED collaborative research and encourage OLED manufacturing in Germany. For more information, please visit the project website at [www.liliproject.com](http://www.liliproject.com).

**Braunschweig University of Technology** is the oldest technical university in Germany. It was founded in 1745 and is a member of TU9, an incorporated society of the most renowned and largest German Institutes of Technology. Today, it has about 13,000 students, making it the third largest university in Lower Saxony. For more information, please visit [www.tu-braunschweig.de](http://www.tu-braunschweig.de).

**Applied Materials, Inc.** (Nasdaq:AMAT) is the global leader in Nanomanufacturing Technology™ solutions with a broad portfolio of innovative equipment, service and software products for the fabrication of semiconductor chips, flat panel displays, solar photovoltaic cells, flexible electronics and energy-efficient glass. At Applied Materials, we apply Nanomanufacturing Technology to improve the way people live. Learn more at [www.appliedmaterials.com](http://www.appliedmaterials.com).

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Merck is a global pharmaceutical and chemical company with total revenues of € 7.6 billion in 2008, a history that began in 1668, and a future shaped by approximately 33,000 employees in 60 countries. Its success is characterized by innovations from entrepreneurial employees. Merck's operating activities come under the umbrella of Merck KGaA, in which the Merck family holds an approximately 70% interest and free shareholders own the remaining approximately 30%. In 1917 the U.S. subsidiary Merck & Co. was expropriated and has been an independent company ever since.