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## Focus on development of energy-efficient technologies **Bosch invests in energy research at U.S. universities**

- ▶ Bosch has awarded six energy research grants at five top U.S. universities; total of 20 grants since 2011
- ▶ Grants reinforce Bosch's global investment in sustainable energy usage
- ▶ Internships provide opportunities for future energy engineers and leaders

**PALO ALTO, Calif.** – Bosch, a leading global supplier of technology and services, has awarded its third round of energy research grants, which total \$1.7 million, and sponsored 15 interns in the area of energy for 2015-16. Following a competitive grant selection process in 2015, the Bosch Energy Research Network (BERN) provided six seed-funding grants to faculty at five top U.S. universities. The grants continue Bosch's long-term focus on energy-efficient technologies, in addition to its support of leading U.S. universities.

BERN is a Bosch initiative in the United States for collaborative research into transformational energy technologies. It is funded by the global Bosch InterCampus Program. Through this global program, Bosch has been supporting universities and research projects focusing on the environment, energy and mobility since 2011. By 2021, the company will have invested about 50 million euros to support universities and research programs focused on the environment, energy and mobility in Germany, China, India and the U.S.

### **Research grants to reduce energy consumption and environmental impact**

In the U.S., BERN is allocating more than \$10 million between 2011 and 2017 to support energy research at top engineering research universities. BERN will fund more than 25 university research grants, with the goal of developing transformative energy technologies for series production.

BERN invited proposals from six institutions: California Institute of Technology; Carnegie Mellon University; Massachusetts Institute of Technology; Stanford University; University of California, Berkeley; and the University of Michigan.

Following a two-stage competitive grant selection process, Bosch chose six proposals – on topics of combustion, energy conversion, energy storage and energy usage efficiency/smart grid – to receive two-year grants of up to \$150,000 per year. The selected proposals were:

- *Stable interfacial modification of lithium-metal anodes.* Principal Investigator: Professor Yi Cui, Stanford University.
- *Research to enable natural gas-fueled, direct injection, auto-igniting diesel-style combustion engines for heavy-duty transportation.* Principal Investigator: Professor Christopher Edwards, Stanford University.
- *In silico design of advanced materials for high-energy density electrochemical devices.* Principal Investigators: Professor William Goddard and Dr. Boris Merinov, California Institute of Technology.
- *Toward next-generation, all solid-state lithium-ion batteries.* Principal Investigators: Richard Laine and Jeff Sakamoto, University of Michigan.
- *High-performance solid electrolytes for batteries.* Principal Investigator: Professor Jeffrey Long, University of California at Berkeley.
- *A software platform for demand-side energy management.* Principal Investigators: Professors Anthony Rowe and Mario Berges, Carnegie Mellon University.

“With the tagline of ‘Invented for life,’ Bosch is dedicated to the responsible usage of energy and stewardship of the environment,” said Jiri Marek, senior VP, Bosch Research and Technology Center – North America. “BERN provides us with opportunities to partner with leading universities to strengthen research efforts, build relationships with top faculty who are researching energy topics, and attract the best engineering talent.”

### **Internship Opportunities for future energy leaders**

BERN also promotes advancements in energy technologies by providing internship opportunities at Bosch sites throughout North America for future engineers and leaders in the development of energy-efficient products and practices. With the

addition of 15 interns in 2015-16, BERN has in total supported 89 interns, recruited from 14 universities, at several Bosch locations, including Palo Alto, Calif.; Farmington Hills, Mich.; Hoffmann Estates, Ill.; Bethlehem, Pa.; Pittsburgh, Pa.; Fort Lauderdale, Fla.; Charleston, S.C.; and Waltham, Mass. BERN interns, working alongside Bosch associates, develop powertrain and thermal management systems for electric vehicles, help develop market strategies for energy storage and grid systems, increase efficiency and reduce emissions from automotive engines, develop advanced automotive sensors, reduce overall energy consumption at manufacturing plants, and investigate smart grid technologies, among other topics.

### **Global commitment to research propels innovative solutions**

More than half of Bosch's \$7.1 billion 2015 R&D budget was focused on products that contribute to energy efficiency, environmental protection and resource conservation.

Nearly 55,800 Bosch researchers and developers design, test and research innovative systems, components and methods worldwide; more than 2,800 Bosch associates are dedicated to R&D in the Americas.

The BERN program is managed by the Bosch Research and Technology Center (RTC) in North America. With locations in Palo Alto, Calif.; Pittsburgh, Pa.; and Cambridge, Mass., RTC has focused since 1999 on a wide spectrum of research topics ranging from application-specific integrated circuit design and MEMS technologies; energy conversion and energy storage technologies; modeling, simulation and controls; user-interaction technologies; wireless and internet technologies; algorithms for robotics; autonomous systems, including autonomous driving; and data mining systems to energy technologies. For further information on the BERN program as well as updates on activities, visit [www.bernprogram.com](http://www.bernprogram.com).

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### **About Bosch**

*Having established a regional presence in 1906 in North America, the Bosch Group employs some 31,000 associates in more than 100 locations, as of December 31, 2015. In 2015, Bosch generated consolidated sales of \$14 billion in the U.S., Canada and Mexico. For more information, visit [www.boschusa.com](http://www.boschusa.com), [www.bosch.com.mx](http://www.bosch.com.mx) and [www.bosch.ca](http://www.bosch.ca).*

*The Bosch Group is a leading global supplier of technology and services. It employs roughly 375,000 associates worldwide (as of December 31, 2015). The company generated sales of \$78.3 billion (70.6 billion euros) in 2015. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiaries and regional companies in some 60 countries. Including sales and service partners, Bosch's global manufacturing and sales network covers some 150 countries. The basis for the company's future growth is its innovative strength. At 118 locations across the globe, Bosch employs 55,800 associates in research and development. The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life."*

Additional information is available online at [www.bosch.com](http://www.bosch.com), [www.bosch-press.com](http://www.bosch-press.com) and [twitter.com/BoschPresse](https://twitter.com/BoschPresse).

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