

March 5, 2009

# UCSB Engineering Professor to Lead New Global Research Institute

## KAITEKI Institute to address challenges in energy, the environment and healthcare



Glenn Fredrickson, Executive  
Director of the KAITEKI Institute

*Tokyo, March 5, 2009* Yoshimitsu Kobayashi, President of Mitsubishi Chemical Holdings Corporation (MCHC), today announced the establishment of the KAITEKI Institute, Inc., a global research institute focused on meeting 21st century challenges in energy, the environment, and healthcare. The institute will become operational on April 1 of this year, under the leadership of Glenn Fredrickson, Professor of Chemical Engineering at UC Santa Barbara and director of the UCSB-based Mitsubishi Chemical Center for Advanced Materials (MC-CAM), as executive director of the KAITEKI Institute.

"We are committed to playing a leading role in increasing the sustainability of the earth and in improving the health and comfort of its people," stated Kobayashi at the press conference in Tokyo officially launching the institute. "Through the KAITEKI Institute, we will apply the best scientific and engineering talent in the world to these problems, no matter where that talent is located, and we are in this ambitious undertaking for the long haul" for this new institute, the horizon is 20 to 50 years out. Our corporate philosophy is "Good Chemistry for Tomorrow," and the institute will help us live up to that philosophy."

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"Kaiteki," which traditionally means "comfort" or "ease" in Japanese, was chosen for the institute's name to represent global quality of life that will be made possible through sustainable technologies such as artificial photosynthesis, which could solve both environmental and energy problems, and through breakthrough scientific advances in human health care.

In announcing Fredrickson's appointment, Kobayashi noted, "We've worked with Professor Fredrickson for many years, and we have come to value his organizational and problem solving skills and his breadth of scientific and technical knowledge" noted the MCHC president. "His leadership and wisdom will be critical in implementing the institute's ambitious research programs."

The executive director, a member of the National Academy of Engineering and a former researcher at AT&T Bell Laboratories<sup>1</sup>, is a world-renowned polymer scientist who has received numerous research awards from organizations such as the American Physical Society, the American Chemical Society, and the National Science Foundation. He has consulted broadly for industry, including leading technical advisory boards for companies spanning the chemicals, materials, and medical device industries. In 2001 at UCSB, Fredrickson founded MC-CAM, which has fostered a close research alliance in functional materials between UCSB and the Mitsubishi Chemical Corporation. MC-CAM research programs have generated more than 60 patent disclosures to date on materials for applications ranging from solid state lighting to advanced automotive plastics and elastomers.

Fredrickson will make six trips a year to Tokyo to consult with the institute's management, but will otherwise direct the institute from Santa Barbara. "The KAITEKI Institute will be a "virtual institute", without any bricks and mortar facilities of its own," commented the executive director. "That will allow us apply most of our funding to the research we sponsor, without having also to support a physical infrastructure and the attendant staff and related overhead. We will be working predominantly with research teams at major universities and national laboratories around the globe—we will seek and select the best talent for a given research challenge, wherever it is located."

In the first 90 days, according to Fredrickson, the institute will establish its web presence and complete the administrative staff that will support operations. In the longer term, the institute will not only fund the highest quality of scientific and engineering research around the world—it will also identify and articulate future societal trends, needs, and challenges, which will be used to set subsequent research targets. A third component of the institute will be to propose solutions based on promising research results as new technology platforms within MCHC, its research arms, or its component businesses.

The KAITEKI Institute's research themes will reflect MCHC's strategic focuses in sustainability, health, and comfort. One of the first defined initiatives is research into utilization of CO<sub>2</sub> as a carbon resource, both reducing atmospheric CO<sub>2</sub> and creating carbon-based small molecules that can be used as fuels, incorporated in consumer products, or transformed into plastic materials. It is envisioned that such transformations, which can be conducted by either chemical or biological processes, would be powered by the sun. In other areas, the institute will focus on breakthrough technologies in medical care that raise the quality of human health; advanced materials and systems that foster the creation of quiet, comfortable, and energy-efficient spaces; and technologies that address future challenges in water and food.

#### About the College

The College of Engineering at UC Santa Barbara is a global leader in bioengineering, chemical and computational engineering, materials science, nanotechnology and physics. UCSB boasts five Nobel Laureates (four in sciences and engineering) and one winner of the prestigious international Millennium Technology Prize. Our students, professors and staff thrive in a uniquely-successful interdisciplinary and entrepreneurial culture. Our professors' research is among the most cited by their peers, evidence of the significance and relevance of their work. <http://engineering.ucsb.edu>

1Now Alcatel-Lucent Bell Labs

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#### Related Links

[Professor Fredrickson's Research Group at UC Santa Barbara](#)

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