



Robert M. Field

DAVID A. DORNFELD

1949–2016

Elected in 2013

“For contributions to sustainability in advanced manufacturing, sensors, and precision material processing.”

BY DANIEL McGLYNN
SUBMITTED BY THE NAE HOME SECRETARY

DAVID ALAN DORNFELD, professor of mechanical engineering at the University of California, Berkeley, and founding faculty director of the Jacobs Institute for Design Innovation, died of a heart attack on March 27, 2016. He was 66.

Professor Dornfeld was a renowned manufacturing expert, widely admired as a teacher, and well regarded as a thoughtful leader. His contributions to the fields of precision and sustainable manufacturing and engineering design education are only part of his legacy. He mentored 55 PhD students, many of whom have gone on to become leaders in academia and industry; consulted and advised countless other graduate students; and became a champion for undergraduate research opportunities through his position at the Jacobs Institute.

David Dornfeld was born August 3, 1949, in Horicon, Wisconsin. Growing up, he and his brother William would accompany their father, who worked at John Deere, to the factory floor. David attended the University of Wisconsin–Madison, where he met his future wife, Barbara Bennett, and earned his BS, MS, and PhD in mechanical engineering. The boy who watched the assembly of tractors with his dad and brother eventually wrote his PhD dissertation on the use of abrasive machining in production engineering.

In 1977 he accepted a position as assistant professor of mechanical engineering at Berkeley, focusing his early research on automated welding. By 1982 he was emerging as a leader both on campus and beyond. In 1986, with fellow ME professor Masayoshi Tomizuka, he organized the Japan-USA Symposium on Flexible Manufacturing, which continues biannually.

In the 1980s he continued to collaborate with his engineering colleagues on automating manufacturing processes, which led to the founding of Berkeley Engineering's Robotics, Automation, and Manufacturing Program (RAMP).

He was recognized for his teaching with the Pi Tau Sigma Excellence in Teaching Award in 1989. That year he also became a full professor of manufacturing engineering and was appointed director of Berkeley's Engineering Systems Research Center, a position he held for a decade. During this time he was awarded four patents related to his research on acoustic emissions measurements.

During the 1990s he began researching chemical-mechanical planarization (CMP), a hybrid process of chemical etching and abrasive polishing used in high-precision semiconductor and microelectromechanical systems (MEMS) manufacturing. He obtained three patents relating to CMP.

He was named the Will C. Hall Family Professor of Engineering in 1999, and then associate dean of interdisciplinary studies (2001–08). In 2005 he was appointed the special division deputy for the Engineering Division at the Berkeley Lab.

In the mid-2000s he founded the Laboratory for Manufacturing and Sustainability. It took shape as a hub for innovation in manufacturing research and education and now spans such interests as data analytics for smart manufacturing, manufacturing technologies for emerging economies, and design for sustainability.

From 2010 to 2015 he chaired the Department of Mechanical Engineering. He was instrumental in representing Berkeley as part of the national Advanced Manufacturing Partnership,

which sought to convert university-based manufacturing research to technological solutions deployed by industry.

He was elected to the National Academy of Engineering in 2013, the same year he received the Outstanding Lifetime Service Award from the North American Manufacturing Research Institute and Society of Manufacturing Engineers (SME). Among other honors, he was a fellow of the American Society of Mechanical Engineers (ASME) and received its William T. Ennor Manufacturing Technology Award in 2010. He was also a fellow and past director of SME and in 2004 was awarded its Frederick W. Taylor Research Medal. He was selected for the Japan Society of Precision Engineering Takagi Prize, the Association for Manufacturing Technology Charles F. Carter Advancing Manufacturing Award, and the ASME/SME M. Eugene Merchant Manufacturing Medal. He was named vice president of the International Academy for Production Engineering (CIRP) in 2015.

A prolific scholar, he published 400 papers, wrote three research monographs, and contributed several chapters to books. He was also the keeper of a long-running and engaging blog about green manufacturing (green-manufacturing.blogspot.com).

Colleagues and students remember David Dornfeld as humble, warm, and open to new ideas, with a curious spirit and a good sense of humor, while at the same time being an effective administrator. He welcomed new ME professor Tarek Zohdi by inviting him out to dinner and later, on a road trip, took a detour to get onion rings from his favorite spot after Zohdi made an offhand remark about liking onion rings. Former student Amrita Srinivasan said, "He was very enthusiastic about everything—very excited to start new projects, meet new people, just explore new ideas.... If you told him you were working on something new, he would light up."

David Dornfeld, a friend and colleague of many, is survived by his wife Barbara and his brother William.