Late Prof. David Dornfeld’s Legacy to Sustainable Manufacturing

Sangkee Min1, Haedo Jeong2, and Sung-Hoon Ahn3

1 Mechanical Engineering, University of Wisconsin-Madison, 1513 University Ave. Madison, WI 53706, USA
2 School of Mechanical Engineering, Pusan National University, 2, Busandaehak-ro, 63beon-gil, Geumjeong-gu, Busan, 46241, South Korea
3 Department of Mechanical and Aerospace Engineering, Seoul National University, 1 Gwanak-ro, Gwanak-gu, Seoul, 08826, South Korea

The primary objective of manufacturing is productivity. This has driven many industries to offshore their manufacturing practices to developing countries where manufacturing costs are cheaper. While it may have provided short-term benefits, offshoring has substantially decreased the manufacturing base of many countries, and it has had a negative ecological and social impact. The increasing awareness of the importance of manufacturing as a fundamental part of the economy and the growing seriousness of climate change and resource reduction has raised an important and challenging question: How can manufacturing be ecologically responsible while maintaining economic value? This was the question that our late Prof. David A. Dornfeld dedicated his work to. For example, Prof. Dornfeld contributed to the establishment of an internationally recognized conference, International Symposium on Green Manufacturing and Applications (ISGMA) in 2011 to address and promote academic and industrial efforts toward sustainable manufacturing.

With great passion, Prof. Dornfeld advanced the field of sustainable manufacturing by establishing a method to evaluate environmental impact of manufacturing from the process to the enterprise level, which captures the resources used from cradle to grave. He also contributed to the literature by transitioning sustainable manufacturing from economic concerns, such as additional cost, to value-added and eventually cost-reduction processes. To enable better transfer of his and other’s work, Prof. Dornfeld and his colleagues instituted the International Journal of Precision Engineering and Manufacturing-Green Technology (IJPEM-GT) in 2014, on which he served as a Co-Editor-in-Chief.

We lost Prof. David Dornfeld to a heart attack on March 27th of 2016, during the morning of Easter Sunday. However, we did not lose our leader and spiritual guide as he will live in our memory for years to come. He challenged our community to achieve a sustainable society that will be pursued by the people whom he led and inspired. IJPEM-GT and ISGMA will inherit his legacy and continue efforts to embed his vision on green technology. We will miss you, Dave.

Brief CV of Prof. David A. Dornfeld: Professor Dornfeld received his Ph.D. in Mechanical Engineering from University of Wisconsin-Madison in 1976 and was the Will C. Hall Family Professor and Chair of Mechanical Engineering at University of California Berkeley. He was recognized by many academic societies in the manufacturing community with several awards, including the NAMRI/SME Outstanding Lifetime Service Award in 2013, ISFA Hideo Hanafusa Outstanding Investigator Award in Flexible Automation in 2014, and M. Eugene Merchant Manufacturing Medals of ASME/SME in 2015.

He dedicated himself to manufacturing technology and education. He was appointed to and served as a member of National Academy of Engineering in the USA. He was the Vice President of the CIRP and would have been the President of the Academy in 2016. His contributions to ASME, SME, ASPE, JSPE, and CIRP was invaluable.

He led the Laboratory for Manufacturing and Sustainability and the Sustainable Manufacturing Partnership. His research group studied green/sustainable manufacturing; manufacturing processes; precision manufacturing; and process monitoring and optimization. He published over 400 papers, authored three research monographs, contributed chapters to several books, and earned seven patents.