About the Honoree

Jiann-Yang Hwang is honored for pioneering research on microwave-assisted metallurgy; for engineering and commercialization of environmental technologies to the electroplating industries; for outstanding innovations on mineral processing; for crucial achievements to power, automobile, steel, and aluminum industries on materials recycling; for great contributions on hydrogen storage materials; for significant developments on clean coal technologies; for exceptional leadership and service to TMS; and for excellent student mentoring.

Jiann-Yang Hwang was born on December 4, 1952, in Taipei, Taiwan. His father, Mr. Wei Hwang from Daye, Hubei, China, was an Army General. His mother, Siping Tang from Zhijiang, Hunan, China, was a school teacher. Correct pronunciation of Jiann-Yang Hwang is like “Jan Young Whang”. He is called by his friends “Jim Hwang” most of the time.

He received his B.S. degree in Earth Sciences from the National Cheng Kung University, Taiwan, in 1974. He moved to the United States in 1977 and obtained his M.S. degree in Earth and Atmospheric Sciences in 1980 and Ph.D. in Mineral Processing and Metallurgical Problems from Purdue University in 1982. After completing his postdoc research from the School of Electrical Engineering at Purdue with emphasis on electromagnetics in 1984, he joined Michigan Technological University and has stayed there until now. He has been the Director of the Institute

of Materials Processing and Professor and Chair of the Mining Engineering Department, Tenured Professor of Materials Science and Engineering, and Professor and Adjunct Professor in Environmental Engineering, Chemical Engineering, Electrical Engineering, and Geology.

Over the past 40 years, Dr. Hwang has dedicated his life to research, education, and industrial consulting services. He is the author/co-author of over 200 research papers, editor/co-editor of 22 books, inventor/co-inventor of over 30 patents, and PI/Co-PI of more than 100 research projects funded by government agencies and industries. His research on microwave-assisted steel production received the award of "Grand Challenge on the Steelmaking Technology of the Next Generation" from the U.S. Department of Energy. His research on hydrogen storage materials also won the DOE "Grand Challenge on Hydrogen Storage Materials" award. His flyash beneficiation technology was licensed and utilized by the Mineral Resource Technology, Inc., a subsidiary of CEMEX, the largest cement and construction materials company of the world. Futianbao Environmental Protection Technologies Company has built and operated the "Zero Liquid Emission" commercial plants in China to treat the wastewater of various Cu, Ni, Zn, Cr and other electroplating industries. These are a few examples of his achievements.

Prof. Hwang received TMS EPD Technology Award (2011), Characterization Committee Best Paper Award (2012, 2016, 2019), Michigan Technological University Bhakta Rath Research Award (2013), China Nonferrous Metal Society First Class Paper Award (2017), AIME James Douglas Gold Medal (2019), and 1000 Talents Award of China (2011). He was engaged as the Chief Energy and Environmental Advisor by Wuhan Iron and Steel Co. Group (2011–2015), a Fortune 500 company, and the Chief Scientist of Futianbao Environmental Protection Technology Company (2015–present). He was also awarded with the Honorary Guest Professor by Beijing University of Science and Technology, Kunming University of Science and Technology, Central South University, North China University of Science and Technology and Chongqing University, and has also been invited to lecture in the Indian Institute of Technology, Kanpur.

Prof. Hwang also exhibited his exceptional leadership in professional society services. He joined TMS and SME in the 1980s and has continued his service through today. He served as the Chairperson for TMS technical committees including the Process Mineralogy, Characterization, and Pyrometallurgy for several times. He is the founder, organizer, and co-organizer of TMS Characterization of Minerals, Metals and Materials Symposium (2004–present) and the International High Temperature Processing Symposium (2009–present). Besides that, he organized/co-organized several other symposia for TMS meetings and chaired a number of technical sessions. With his great efforts and leadership, both symposia became the annual primary symposia of the Characterization Committee and Pyrometallurgy Committee. The series of proceedings of "Characterization of Minerals, Metals, and Materials" and "International High Temperature Processing" are two major proceedings of the TMS Annual Meeting. In 2019, he received the TMS EPD Distinguished Service Award in honor of his long-term leadership in the TMS community.

In addition, Prof. Hwang was an active leader in mineral processing, metallurgy, water treatment, and waste materials reuses in the Society for Mining, Metallurgy, and Exploration (SME), and American Chemistry Society (ACS), as a symposium organizer and session chair over the past years. He also served as the Editor-in-Chief for the *Journal of Mineral and Materials Characterization and Engineering* (2001–present), Editor of *Current Microwave Chemistry* (2013–present), and Editor of *International Journal of Mineral Processing* (1990–2000).

Dr. Hwang has been dedicated to undergraduate, graduate, doctoral, and postdoctoral education. Examples of some worthy mentoring activities include:

(i) Rath Research Award of Michigan Technological University, 2013. This award recognizes a Ph.D. student and the advisor for their exceptional scientific and technological research in anticipation of the future needs while supporting potential advances in emerging technology.
(ii) First Place, MTU Senior Design annual competition of the whole campus, 2008 (advised a Materials, Mechanical, and Business enterprise team).
(iii) Championship, Graduate Student Team, Automotive Solutions Competition on Plastics Recycling, 1994, jointly sponsored by American Plastics Council, Vehicle Recycling Partnership (the Big Three: GM, Ford, and Chrysler) and Society of Automotive Engineers.
(iv) TMS Young Professional Leader Award to one of his Ph.D. students.

We are very happy to have this symposium honoring Professor Jiann-Yang Hwang. His contributions and achievements to the science, technology, society, and education are very appreciated.