

May 23-24 2018

ITEM 179-1504-R0518

Request for authorization to confer the title of Professor Emeritus upon Dr. Hsin-Hsiung Huang-Montana Tech of The University of Montana

THAT

Upon the occasion of the retirement of Professor Hsin-Hsiung Huang from the faculty of Montana Tech of The University of Montana, the faculty wish to express their appreciation for his 40 years of dedicated and valued service to the Department of Metallurgical & Materials Engineering, Montana Tech, the Butte Community, and the State of Montana by recommending the rank of Professor Emeritus be conferred upon him by the Board of Regents of the Montana University System.

EXPLANATION

Hsin-Hsiung Huang was born and raised in Taipei, Taiwan. He prefers to simply be called "Huang" but fellow researchers including his students also call him, "H³", his affectionate nickname. Huang earned his B.S. in Metallurgical Engineering at Cheng-Kung University, Taiwan, in June 1969. Afterwards, he promptly started Graduate School at Stanford University, California, where he completed his MS and PhD degrees in Chemical and Extractive Metallurgy in 1974 and 1975, respectively. Dr. Huang immediately joined the Metallurgical Engineering Department at The University of Utah as a Postdoctoral Researcher and remained there until 1978. H³ then became a Visiting Professor in the Metallurgical & Materials Engineering Department at Montana Tech, a position that he enjoyed until 1982 when he became Assistant Professor. Dr. Huang was promoted to Associate Professor in 1986, received tenure in 1989, and was promoted to Full Professor in 1992. In 1999, he became the Anaconda Professor of Metallurgical Engineering. He retains this title today.

Having been at Montana Tech for 40 years and spent nearly 3 years at University of Utah, Dr. Huang has over 4 decades in academia. At Montana Tech, he has been a mainstay with the Computer and Telecommunications Advisory Committee, Web Guidance Committee, Research Advisory Committee, and Graduate Council but has also served periodically on the Library, Traffic and Parking, Cultural Events and Curriculum Review Committees. He is a member of The Minerals, Metals and Materials Society (TMS), Sigma Xi (through the Stanford Chapter), and ASM International (formerly the American Society for Metals). He participates regularly with them as well as the Society of Mining, Metallurgy and Exploration (SME). With SME, he is not a member but is active by attending and presenting at their Annual Meeting approximately every other year. With TMS and SME, he has been active with the Aqueous Processing Committee and Mineral and Metallurgical Processing Division, respectively. It is through these societies that he has done most of his publishing and presenting. These efforts kept him professionally active and helped the M&ME Department and Montana Tech maintain accreditation.

Huang is best known for developing the thermodynamic equilibrium modeling program, StabCal, which is used internationally to calculate speciation/stability diagrams ranging from simple alpha plots to more complex mass-balanced E_H-pH figures. He has spent a lifetime developing the program and continues to increase its capabilities. His latest contributions to StabCal involve calculating 3-dimensional plots and applying it to non-hydrometallurgical processes including but not limited to mineral processing (sizing and flotation), pyrometallurgy (smelting and refining), electrometallurgy (rare earth elements), and the environment (water

remediation, recycling and waste treatment). He plans to continue adding to its capabilities as he phases into retirement and beyond.

Dr. Huang's research activities not only include thermodynamic modeling but also working in the lab or field to generate data to verify the models. While all of his work has been critical, it is his environmental research that has received the highest accolades. The four most prevalent include the titration simulation for treating Berkeley Pit water, formation of high density sludge from neutralization of acid mine water, removal of manganese from waste water, and speciation of arsenic and subsequent adsorption on precipitated ferrihydrite. In this regard, it is strongly noted that his work on Berkeley Pit water resulted in his proposed remediation being selected as the best demonstrated available treatment (BDAT). His process is specified in the EPA Record of Decision (ROD).

For the last three decades, StabCal has been used by the Department, CAMP, and faculty across the campus, particularly by graduate students and their theses and dissertations as well as their publications and presentations. It has also been used around the world as a premiere tool by a number of universities (e.g., Colorado School of Mines, U of Utah, U of Arizona, U of New South Wales, Akita U, and Curtin U) and companies (e.g., Freeport McMoRan, Newmont, Barrick, Montana Resources/ARCO, Kennecott, Hecla, Montana Enviromet, and MSE-TA). In the end, StabCal served what Dr. Huang cared about most: undergraduates learning in the classroom and lab, graduate students receiving their advanced degrees, and companies saving thousands if not millions of dollars. Every step of the way, H³ was unselfish, always making himself available to help. StabCal has been a true labor of love.

Dr. Huang loves math and chemistry. In this regard, his enthusiasm was contagious in the classroom and lab, making him the perfect instructor for Metallurgical Kinetics, Phase Transformations, Heat and Momentum Transfer, Hydrometallurgy, Extractive Metallurgy Lab, Advanced Extractive Metallurgy I and II, and Computer Applications. His expertise, knowledge and insight in these subject areas, particularly when he applies StabCal to his lectures, has been invaluable and shared generously with everyone throughout the years.

With this recommendation goes sincere gratitude for over 40 years of invaluable teaching, service and research. To Dr. Hsin-Hsiung Huang: congratulations and best wishes for the future.

ATTACHMENTS

No Attachments