2015 TMS William Hume-Rothery Award and Symposium

Dr. William J. Boettinger, FASM
NIST Fellow Emeritus
2015 TMS William Hume-Rothery
Award Recipient

The inaugural TMS William Hume-Rothery Award was given in 1974 to Paul A. Beck and has been since awarded to highly recognized scientists in the field of materials science, such as John W. Cahn who is also a NIST Fellow Emeritus. The award is presented to recognize “a scientific leader for exceptional scholarly contributions to the science of alloys” and is considered a pinnacle award of the society. Dr. William J. Boettinger was recognized “for outstanding contributions to thermodynamics and kinetics of metallurgical systems and their application to the understanding of alloy microstructures and the relationship to processing conditions.” After being informed that he would be the 2015 recipient of the TMS Hume-Rothery award, Dr. Boettinger wrote: “Hume-Rothery embodied the transformation of metallurgy from an empirical practice to one embracing the increasing knowledge of materials obtained from all fields of science during the mid-twentieth century. I am humbled to be added to the list of awardees.”

Dr. Boettinger has worked throughout his career as a metallurgist at the National Institute of Standards and Technology (NIST, formerly National Bureau of Standards). NIST recognized his outstanding scientific contributions by electing him Fellow in 2001. Although Dr. Boettinger officially retired from NIST in 2011 he is still active as guest researcher at NIST.

The award was presented at the TMS 2015 144th Annual Meeting and Exhibition, February 2015, in Orlando, Florida, USA. The Hume-Rothery Award Symposium to honor the award recipient was sponsored by the Alloy Phases Committee of the TMS Functional Materials Division and organized by Raymundo Arroyave, Texas A&M; Mark Asta, University of California at Berkeley; and Ursula R. Kattner, NIST. The symposium was titled “Multicomponent Alloy Metallurgy: Bridge from Materials Science to Materials Engineering” especially regarding the physical metallurgy of alloys with three or more components. The topics of interest for the symposium included thermodynamics with focus on computational methods; solidification, solidification microstructure development and solidification path analysis; diffusion mobility and diffusion path analysis; and solid state transformations. The symposium was accordingly organized in four sessions: Thermodynamics, Solidification, Diffusion, and Solid State Transformations.

A total of 24 invited oral presentations and 11 contributed poster presentations were given to address progress and limitations to progress in the topic areas, including experimental as well as computational and theoretical work. The 2015 William Hume-Rothery Award lecture, “Solidification of Multicomponent Alloys” by Dr. Boettinger, opened the symposium. The lecture reviewed various topics taken from the speaker’s lifetime research portfolio that involved multicomponent alloy solidification. The content of this presentation can be found as an article in this issue of *Journal of Phase Equilibria and Diffusion*. This issue also includes nine papers conveying the spirit of the discussion that took place at the symposium and were originally given as oral presentations at the symposium.

It was a great pleasure to participate in the organization of the 2015 William Hume-Rothery Award Symposium. Friends and colleagues, many of whom he has mentored, were delighted to congratulate Bill on this well-deserved award. We are all looking forward to many more contributions of his inspirational work.

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