



Professor Rainer Schmid-Fetzer
The 2014 TMS Hume-Rothery Award Recipient

In 1972 TMS established an award to honor the memory of the great pioneer in alloy phases, William Hume-Rothery. It is presented annually to an outstanding scientific leader in recognition of exceptional contributions to the science of alloys. In 2014 the recipient of the TMS William Hume-Rothery Award is *Dr.-Ing. Rainer Schmid-Fetzer*, Professor at Clausthal University of Technology, head of the research group Thermochemistry and Microkinetics II (see picture).

The award presentation was at the 143rd TMS-AIME Annual Awards Banquet organized during TMS 2014 143rd Annual Meeting and Exhibition, February 16-20, 2014 in San Diego, California, USA. Additionally, a Hume-Rothery Memorial Symposium was held in honor of the award recipient Rainer Schmid-Fetzer in recognition of his seminal contributions to alloy thermodynamics and phase diagrams both computationally and experimentally. The symposium assessed the current state of the art in thermodynamics and kinetics of engineering materials and brought together computational and experimental researchers. The research interests of the awardee were reflected by a special emphasis placed on:

- Modeling of alloy thermodynamics and phase diagrams by CALPHAD and ab initio approaches;
- Microstructure evolution simulations for complex morphologies (e.g. phase field) and multi-level kinetic models for simultaneous nucleation, growth and coarsening of precipitates;
- Experimental research on thermodynamic, thermophysical and kinetic data to be used as input for CALPHAD and microstructure evolution modeling;
- Applications of CALPHAD thermodynamics and microstructure evolution simulations to efficient materials design and processing of multi-component alloys.

The symposium was organized by Hans J. Seifert (Karlsruhe Institute of Technology, Germany), Fan Zhang, (CompuTherm, LLC, Madison, WI USA); Alan Luo (The Ohio State University, USA) and Peter Uggowitzer (ETH Zurich, Switzerland) and sponsored by the TMS Electronic, Magnetic, and Photonic Materials Division and the TMS Alloy Phases Committee.

A total of 36 presentations were given in several sessions devoted to major research topics such as (1) Thermodynamic Modeling and Phase Diagrams, (2) Thermodynamic and Kinetic Modeling and Experiments, (3) Light Alloy Systems (4) Iron-base Systems and (5) Materials Systems for Energy. After opening notes of Fan Zhang (CompuTherm, LLC), honoring the award winner with academic and personal notes, the 2014 William Hume-Rothery Award lecture was given by Rainer Schmid-Fetzer. “Phase diagrams are the beginning of wisdom—not the end of it”—this famous quotation coined by Sir William Hume-Rothery has guided the awardee’s materials research for many years and the main contents of his highly instructive presentation can be found in his article in this present edition of *Journal of Phase Equilibria and Diffusion*. Ten additional fine papers from the William Hume-Rothery Award Symposium are presented here giving an impression on the state-of-the-art in fundamental and application oriented research in the areas of materials thermodynamics and kinetics.

Friends and colleagues cordially congratulate the award winner Prof. Rainer Schmid-Fetzer. His academic and research performances are exceptional and he is ranked among the pioneers in the area of phase diagrams and thermodynamics of alloys. We give thanks to him for his instructive research contributions as well as for many inspiring discussions over the past years.

Hans J. Seifert
(Karlsruhe Institute of Technology, Germany)
on behalf of friends and colleagues of Rainer Schmid-Fetzer