

## **Biographical Sketch - Robert D. Pehlke**

Robert D. Pehlke studied at the University of Michigan, B.S.E. (Metallurgical Engineering) 1955, Massachusetts Institute of Technology, S.M. (Metallurgy) 1958, and Sc.D. (Metallurgy) 1960, and at the Technical Institute, Aachen, Germany as a Fulbright Fellow, 1956-57. He joined the faculty of the University of Michigan as Assistant Professor in February 1960, and was appointed Associate Professor in June 1963, Full Professor in June 1968 and Professor Emeritus in December 2002. In May 1973, he was named Chairman of the Department of Materials and Metallurgical Engineering. In June 1978 and 1983, he was re-appointed Department Chairman and served until June 1984. In 1994, he was a Visiting Professor at Tohoku University, Sendai, Japan.

Dr. Pehlke is a member of ASM and AIME, and has served on numerous divisional and award committees within these societies. He has served on the ASM Technical Divisions Board, as Secretary of the ASM Academy for Metals and Materials, and in 1976 was named a Fellow of the Society. In 1964, he co-edited the ASM seminar volume on Computers in Metallurgy. In 2001, he presented the Edward DeMille Campbell Memorial Lecture on "Computer Simulation of Solidification – The Evolution of a Technology". He has served as Chairman of the Process Technology Division and as a Director of the Iron and Steel Society (now the Association for Iron and Steel Technology, AIST) of AIME. He served as chairman of the Editorial Board for the AIME Monograph Series on Oxygen Steelmaking. In 1980, he presented the Howe Memorial Lecture on "Steelmaking – The Jet Age". Also in 1980, he was named a Distinguished Life Member of The Iron and Steel Society. In 1976, he received the Science Award Gold Medal of the Extractive Metallurgy Division, and in 1983, was named a Fellow of The Metallurgical Society of AIME.

He was National President of Alpha Sigma Mu and a member of Tau Beta Pi, Sigma Xi and the New York Academy of Sciences. He is also a member of the American Society for Engineering Education and the American Foundry Society. He was also a member of the Iron and Steel Institute of London, the Iron and Steel Institute of Japan and the Verein Deutscher Eisenhüttenleute. He is a registered professional engineer in the State of Michigan.

His early professional employment included three summers each with General Motors Research Laboratories and the Ford Scientific Laboratory. He has consulted extensively on metallurgical and materials subjects, principally with ferrous and non-ferrous metal producers and their suppliers. Professor Pehlke has authored or co-authored over 300 publications including authoring, co-authoring or editing eleven books. His research has covered a broad range of metallurgical topics with an emphasis on high temperature physical chemistry of metallurgical systems and computer applications in metallurgy.

## **Areas of Materials Expertise**

Professor Pehlke is experienced and well qualified in materials and manufacturing issues. He has taught most of the undergraduate courses and numerous graduate offerings. He chaired a one week course on continuous casting of steel for industry for 26 consecutive years in the Continuing Education Program of the College of Engineering at the University of Michigan. His consulting activities have taken him to over 90 steel plants all over the world. He is the author of two steelmaking related patents. He has modeled iron blast furnace performance, the cupola melting furnace, the basic oxygen furnace including the design of supersonic nozzles and refractory performance, and heat transfer and fluid flow in continuous casting processes. He has performed failure analyses on medical implements and implants, e.g. suture needles, supportive plates, bone screws and a Schneider nail, and on dental tools, e.g. endodontic files. He has studied and conducted projects on metal failure analyses, strength of materials, corrosion, foundry practice including computer modeling of solidification and design of foundry operations, non-ferrous metals production and processing, metal plating, gas explosions, other metallurgical plant explosions, recycling, material applications and testing, welding, production and processing of powder metals, sheet metal products, pipelines and ceramic materials and refractories. He has extensive experience with the application of ASTM and other standards.