

Editorial

## Professor John R. Howell on his 70th birthday



It is a great pleasure and a privilege to write this birthday laudatio for Professor John R. Howell who celebrated his 70th birthday on June 13, 2006. Professor Howell is Ernest Cockrell, Jr. Memorial Chair and Baker Hughes, Inc. Centennial Professor in the Department of Mechanical Engineering at the University of Texas, Austin, Texas. The name, John R. Howell, is well known to graduate students, engineers, and researchers working in the field of thermal radiation heat transfer because he is considered a pioneer in radiation heat transfer. His research has centered on developing solution techniques for radiative transfer in participating media (particularly the Monte Carlo method), solutions of highly non-linear combined mode heat transfer problems, the catalog of the shape factors, the benchmark solutions of the radiation heat transfer problems, heat transfer in energy systems, and most recently, inverse design and control of thermal systems with combined-mode (non-linear) heat transfer.

He was born and raised in Columbus, Ohio. He obtained B.S. and M.S. in Chemical Engineering and Ph.D. in Engineering from Case Institute of Technology (now Case Western Reserve University), Cleveland, Ohio in 1958, 1960, and 1962, respectively.

He started his professional career at NASA Lewis (now Glenn) Research Center, Cleveland, Ohio, where he initiated his research in radiation heat transfer. With Robert Siegel, he wrote a radiation heat transfer monograph initially published as NASA Technical Notes. At NASA, he

was a leading developer of the application of Monte Carlo methods in radiative transfer. The Monte Carlo method provides solutions to a variety of complex physical problems by performing computer assisted statistical sampling experiments.

From 1968 to 1978, Professor Howell taught at the University of Houston, Houston, Texas, where he was also Director of The Energy Institute during 1975–1978. In 1978, he moved to The University of Texas, Austin, Texas where he has stayed ever since. At The University of Texas, he served as Mechanical Engineering Department Chair from 1986 to 1990 and as Associate Dean for Research in the College of Engineering during 1996–1999. He was also Director of the Center for Energy Studies during 1988–1991. He worked to improve safety awareness, renovation procedures, communication between the College and the central administration on issues ranging from renovations to intellectual property. He also chaired the committee to develop a Strategic Plan for the College of Engineering. He was Program Manager for Thermal Transport and Thermal Processing Program of the National Science Foundation during 1994–1995. He served as Senior Technical Editor of ASME *Journal of Heat Transfer* during 1995–2000. He is on the Editorial Advisory Board of the *International Journal of Heat and Mass Transfer*, the *International Communications in Heat and Mass Transfer* and on other boards. He was also an active delegate for USA to the Assembly for International Heat

Transfer Conferences and member of its International Scientific Committee for USA.

He coauthored *Thermal Radiation Heat Transfer*, Taylor and Francis, now in 4th edition (2002) (with Robert Siegel), *Fundamentals of Engineering Thermodynamics*, McGraw Hill, 2nd edition 1992 (with Richard Buckius), and *Thermodynamics: An Integrated Learning System* (with Derek Baker, Ofodike Ezekoye and Philip Schmidt), John Wiley & Sons, 2005, and has published over 300 archival journal articles, conference papers, and reports. He has given over 40 invited lectures on radiation heat transfer in Brazil, France, Russia, Saudi Arabia, Turkey, USA, and other parts of the world. He is well known not only in the USA and Western countries but also in Russia, because of his excellent textbook *Thermal Radiation Heat Transfer*. This book was translated into Russian in 1975 and also into a few other languages. He also has seven patents on radiation measurement, hybrid vapor compression cycle, and combustion in porous media. He maintains a web page of thermal radiation shape factors at <http://www.me.utexas.edu/~howell/>.

Professor Howell received a NASA Special Service Award in 1965 for “application of Monte Carlo methods to thermal radiative problems”. He received the ASEE Ralph Coats Roe Award in 1987 as Outstanding Mechanical Engineering Educator, the AIAA Thermophysics Award (1990), ASME Heat Transfer Memorial Award (1991), and ASME/AIChE Max Jakob Award (1998) for his work in radiative transfer. He is a Fellow of ASME (1983) and AIAA (1993), and was elected a Foreign Member of the Russian Academy of Sciences (1999). He also

gives seminars to teach the young researchers in Russia under the leadership of Professor Alexander Leontiev. In 2004 the University of Texas College of Engineering recognized Professor Howell’s outstanding research contributions with the Billy and Claude R. Hocott Distinguished Centennial Engineering Research Award. Professor Howell was elected Member of the National Academy of Engineering for the development and dissemination of methods of addressing complex radiation heat-transfer problems in 2005.

More than 60 graduate (approximately 30 Ph.D. and 30 M.S.) students have obtained their degrees under his guidance. All of his students admire his intellect, friendly teaching method of the complex subject of radiation heat transfer, and caring nature of looking out for the welfare of the students. It is said that he has dressed up as Max Planck for teaching his undergraduate classes. His students over the years have moved on to successfully serve in leading laboratories, universities and private companies. His colleagues admire him for his easy going personality and very friendly interaction. He has been honored several times on his birthdays and other occasions at technical conferences. The Fourth International Symposium on Radiation Transfer held in Istanbul Turkey and organized by the International Center for Heat and Mass Transfer, was dedicated to him along with two other researchers.

We all wish him a healthy, long, and purposeful life in the company of his wife, Susan, and indulging in radiation heat transfer. We all are better off with him continuing to lead an active life and making valuable contribution to thermal engineering.

Manohar S. Sohal, *Idaho National Laboratory, Idaho Falls, Idaho*

Ray Viskanta, *Purdue University, West Lafayette, Indiana*

Leonid A. Dombrovsky, *The Russian Academy of Science, Moscow, Russia*

W.J. Minkowycz\*

*University of Illinois at Chicago, Department of Mechanical Engineering (MC 251),  
842 W. Taylor Street, Chicago, Illinois 60607-7022*

*E-mail address: [wjm@uic.edu](mailto:wjm@uic.edu)*

Michael F. Modest, *Pennsylvania State University, University Park, Pennsylvania*

Kyle J. Daun, *National Research Council of Canada, Ottawa, Canada*

Ephraim M. Sparrow, *University of Minnesota, Minneapolis, Minnesota*

Jean Taine, *École Centrale Paris, Châtenay-Malabry Cedex, France*

M. Pinar Mengüç, *University of Kentucky, Lexington, Kentucky*

Arthur C. Ratzel III, *Sandia National Laboratories, Albuquerque, New Mexico*

\* Corresponding author

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