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In Celebration

Professor James V. Beck on his 90th birthday



On May 18, 2020, James V. Beck celebrates his 90th birthday. For 60 years, Professor Beck has made outstanding contributions as a scholar and teacher. He is a well-respected and prominent contributor to several scientific and engineering communities within the United States and internationally, especially in the areas of parameter estimation, solutions to inverse problems, and Green's functions applied to conduction heat transfer. Professor Beck continues to publish regularly on heat conduction, parameter estimation and inverse problems. Jim balances his enthusiasm for research with his dedication to his wife, Barbara, and to their children and grandchildren.

Professor Beck received his B.S. degree from Tufts University in 1956, S.M. degree from the Massachusetts Institute of Technology in 1957, and Ph.D. from Michigan State University in 1964, all in Mechanical Engineering. He was a Senior Staff Scientist at AVCO Research and Advanced Development in Massachusetts from 1957 until 1962. He then joined the Department of Mechanical Engineering at MSU in 1962 as an instructor, rising to professor in 1971. His many former graduate students play prominent roles in academia, research laboratories, and in government. Currently, he is Professor Emeritus at MSU. Professor Beck has enjoyed sabbatical leaves at Sandia National Laboratories and in Europe.

As a pioneer in the field of inverse problems in heat transfer, Professor Beck has exerted leadership to foster an international

community in this field. The Inverse Problems in Engineering Seminars were initiated at MSU in 1988 through his impetus. These informal meetings continue to attract scholars from around the world to universities around the USA and Europe. A collaboration with Jean-Pierre Bardon starting in 1982 has continued ever since. In 1993, they instigated a meeting at ISITEM (Institut des Sciences de l'Ingénieur en Thermique-Energétique et Matériaux) within the University of Nantes, which resulted in the creation of the International Conference on Inverse Problems in Engineering and in the creation of the French group METTI (Métrologie Thermique et Techniques Inverses). In 1990, Professor Beck led a delegation of participants to the First International Conference on Inverse Problems in Suzdal, USSR. In 1992, Professor Beck organized the visit of a large delegation of Russian scientists to the USA as participants of his IPE Seminar and the five-day 1st American-Russian workshop on Inverse Problems sponsored by the US NSF. Four years later, in 1994, he jointly organized the second conference in this series in St. Petersburg, Russia, with O.M. Alifanov of the Moscow Aviation Institute. The workshop fostered collaborations between specialists in the field of inverse phenomena from many countries. These efforts have led to a large number of publications, presentations, and successful students scattered across the globe. The Sixth International Conference on Inverse Problems in Samara, Russia (May 2–7, 2010) was dedicated to Professor James V. Beck's 80th birthday. Also, the 10th International Conference on Inverse Problems in Engineering (ICIPE 2020; <http://icipe20.univaq.it>), Francavilla al Mare (Chieti), Italy (May 18–21, 2020), is dedicated to him.

Professor Beck has authored more than 150 archival journal articles and five book chapters, as well as countless technical presentations. Many of his publications have been collaborations made possible by his lifelong search for people who share his enthusiasm for discovery. Professor Beck is the primary author of three graduate level textbooks: *Parameter Estimation in Engineering and Science*, with K.J. Arnold (Wiley, 1977); *Inverse Heat Conduction: Ill-posed Problems*, with Ben Blackwell and Charles R. St. Clair, Jr. (Wiley, 1985); *Heat Conduction Using Green's Functions*, with K.D. Cole, A. Haji-Sheikh, and B. Litkouhi (Hemisphere, 1992). Also, he is the secondary author of the second edition of *Heat Conduction Using Green's Functions* book (Cole, Beck, Haji-Sheikh, and Litkouhi, Taylor & Francis, CRC Press, 2010). The book *Inverse Heat Conduction: Ill-posed Problems* has been translated into Russian and published by Mir Publishing in 1989; it is very popular among Russian students and specialists in the field of inverse problems.

In addition to his unique contributions and leadership in various topics, he has been a very productive and valuable team member. As a contributor to the EXACT project (www.exact.unl.edu) funded by the US NSF in 2012, Professor Beck provided

numerous heat conduction solutions and accompanying computer codes for planar and cylindrical bodies, finite and semi-infinite, one- and multi-dimensional, for short- and large-times. He has published recently on new concepts such as complementary experiments and generalized transient solutions in heat conduction.

Active in the Heat Transfer Division of the American Society of Mechanical Engineers, Professor Beck has been a Fellow of ASME since 1988. He served as Associate Technical Editor for the ASME Journal of Heat Transfer and as Associate Editor for Inverse Problems in Science and Engineering. Professor Beck was awarded the ASME Heat Transfer Memorial Award in 1998, and later served as the Chair of the Heat Transfer Division's Honors and Awards Committee. Other awards include the MSU Distinguished Faculty Award (1987) and the Tufts University Department of Mechanical Engineering Award for Outstanding Achievement in Mechanical Engineering Practice (1991).

Professor Beck has brought several international researchers into his research group at Michigan State, resulting in several long-term collaborations and many friendships. The French group METTI, strongly supported by Jim Beck, was the result of a long collaboration between him and thermal engineering teams of several universities including Paris VI, Nantes, Lyon, Nancy, Poitiers, Marseille, etc. This collaboration started in 1982 and has continued ever since, prompting Jim Beck to come to France on several occasions to give talks and bring French researchers into his team at MSU. For this reason Jim Beck is very well known, appreciated, and respected in the French heat transfer community.

On the occasion of his 90th birthday, and on behalf of his great many friends, former students, and colleagues worldwide, we wish Professor Beck a resounding Happy 90th Birthday with many thanks for all of his valuable contributions, outstanding service,

leadership, and, especially, his friendship. We wish Professor Beck and his family many happy years of continued prosperity and great health!

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