

**HIGUCHI – KU ENDOWMENT
RESEARCH ACHIEVEMENT AWARD CEREMONY**

**Tuesday, November 10, 2015
Education Pavilion, Lied Center of Kansas**

Balfour Jeffrey Award in Humanities and Social Sciences

Based on his research achievements, Michael Wehmeyer, Ross and Mariana Beach Professor of Special Education at the University of Kansas, is presented with the Balfour Jeffrey Award in Humanities and Social Sciences.

Michael Wehmeyer came to KU in 1999 from The Arc of the United States, where he held research and administrative positions. The Arc is the nation's largest non-profit community-based organization advocating for and serving people with intellectual and developmental disabilities and their families. The first decade of his career provided a practical foundation for all that followed, spent primarily as a public school special education teacher and administrator in Oklahoma and Texas. At KU's Life Span Institute, he is director of the Beach Center on Disability and co-director of the Kansas University Center on Developmental Disabilities.

Dr. Wehmeyer is the foremost researcher in the world in an area of study in education and psychology known as self-determination. He has focused primarily on its application to adolescents and adults, especially those with intellectual and developmental disabilities. During his career, he has published more than 200 peer-reviewed articles in the most prestigious and highly cited national and international journals in his field. He is also the editor or author of 30 books, with others under contract.

His scholarly productivity is broad, encompassing theory, conceptualization, research, educational pedagogy and even history. Notable titles include *Exceptional Lives: Special Education in Today's Schools*; *Handbook of Positive Psychology and Disability*; *Intellectual Disability: Definition, Classification and Systems of Support*; and *The Story of Intellectual Disability: An Evolution of Meaning, Understanding and Public Perception*.

Dr. Wehmeyer's contributions have been widely recognized within his profession. He is a past president of the American Association on Intellectual and Developmental Disabilities and the 2015 recipient of its Distinguished Research Award. In 2013, he received the Distinguished Research Award from The Arc of the United States.

He is a past president of the Council for Exceptional Children's Division of Career Development and Transition, and currently a member of that council's board of directors for the Division on Autism and Developmental Disabilities. He is past editor-in-chief of *Remedial and Special Education*, a leading journal, and the co-founder and current co-editor of a new publication: *Inclusion: AAIDD Research to Practice Journal*.

Dr. Wehmeyer received his B.S. and M.A. degrees from the University of Tulsa in special education-mental retardation; an M.Sc. degree from the University of Sussex in experimental psychology; and a Ph.D. degree from the University of Texas at Dallas in human development and communication sciences.

In nominating Dr. Wehmeyer for this award, KU colleagues wrote “Rarely has any one researcher had such deep and wide influence on other researchers, policy leaders and practitioners. Indeed, rarely has any one research so affected the lives of persons traditionally marginalized as those with intellectual and development disabilities.

“[He] has proved them to be capable beyond the limitations that other[s] . . . have imposed on them for centuries, and even now in our country. Through his research and associated leadership, he has liberated them and affirmed their dignity.”

Olin Petefish Award in Basic Sciences

Based on his research achievement, David Nualart, Black-Babcock Distinguished Professor of Mathematics at the University of Kansas, is presented with the Olin Petefish Award in Basic Sciences.

Dr. Nualart came to KU in 2005 from the University of Barcelona, where he was a professor of statistics and operational research. He was a faculty member there for more than 30 years, including three years as director of its Institute of Mathematics. He held a postdoctoral appointment at the University of Toulouse in a research unit of the French National Center for Scientific Research. He is well-traveled, having been a visiting professor at institutions in Italy, Germany, France, Switzerland, Finland, Mexico, Venezuela, Uruguay, Israel, and the United States.

Dr. Nualart is one of the world’s leading experts on probability theory, with an emphasis on stochastic calculus of variations applied to the study of classical equations, such as differential equations, driven by random “noises.” In this context, “noises” means the many quantities that are subject to probabilistic variations. This area of study is known as Malliavin calculus, and his book is considered the definitive account of the subject.

Among other applications, this calculus is used in mathematical finance – a field of applied mathematics concerned with financial markets – to analyze quantities, such as the value of derivatives of a stock.

In collaboration with Giovanni Peccáti of the University of Luxembourg, he established what is known as the Fourth Moment Theorem, a simplification of the method of moments in statistics and a starting point for the work of many other probabilists.

Dr. Nualart received numerous national and international grants in support of his research while in Spain. Since coming to KU, he is the recipient of four awards from the National

Science Foundation, primarily in support of his ongoing work on the stochastic analysis of Gaussian fractional noises.

In addition, he is the author or co-author of more than 220 journal articles, in addition to the previously mentioned *Malliavin Calculus and Related Topics*, published in a second edition in 2006. He has edited three other publications on stochastic analysis and served as an associate editor for 20 different mathematics journals during the course of his career – including five currently.

He is a recipient of the Research Prize of the Royal Academy of Sciences of Madrid as well as the Iberdrola Prize for science and technology. He is a fellow of the Institute of Mathematical Statistics, and was given the honor in 2006 of addressing the quadrennial International Congress of Mathematicians at its meeting in Madrid.

Dr. Nualart received a Licenciado en Ciencias (Matemáticas) and a Ph.D. degree in mathematics from the University of Barcelona. (I would point out that his *alma mater* is Spain's principal center of university research and rated among the top 100 in the world. It has an enrollment in excess of 60,000 students and, with no disrespect, predates KU by 400 years.)

In nominating Dr. Nualart for this award, a KU colleague described him as “a world-class mathematician, a prolific author, a tireless provider of service to the profession, an outstanding teacher, and superb mentor of graduate students.”

Dolph Simons Award in Biomedical Sciences

Based on her research achievement, Paulette Spencer, Ackers Distinguished Professor of Mechanical Engineering at the University of Kansas, is presented with the Dolph Simons Award in Biomedical Sciences.

Paulette Spencer came to KU in 2007 from the University of Missouri-Kansas City, where she was a Curators' Professor and director of the Center for Research on Interfacial Structure and Properties. She spent nearly 20 years at UMKC in the School of Dentistry, holding joint appointments in pediatric dentistry and oral biology.

Earlier, she was an assistant professor at the University of Mississippi School of Dentistry and maintained a faculty dental practice in pediatric dentistry. At KU, she is the founding and current director of the Bioengineering Research Center, one of 10 university research centers and institutes on the Lawrence Campus.

Dr. Spencer is an internationally recognized scholar in the design and development of biomaterials that can be used to repair, reconstruct and replace human tissues. Her original work on multi-scale structure-property-function characterization of biomaterials is applicable to the design of novel biomedical devices, such as dental crowns, orthopedic implants, artificial knees and hips, and scaffolds for tissue engineering.

Equally important, her work on understanding biomaterial-tissue interfaces at the molecular level brings new opportunities for the development of next-generation biomedical devices with improved performance. It also supports the development of new materials for drug delivery to enhance early diagnosis and effective treatment of disease.

Dr. Spencer's seminal research into biomedical problems has added a new body of knowledge to the fundamental and applied biomedical literature. She is the author or co-author of more than 150 heavily cited journal papers and book chapters, and a member of several editorial boards. She is also the recipient of a large number of research grants from several NIH institutes, the U.S. Public Health Service, the National Science Foundation and the Kansas Bioscience Authority.

Dr. Spencer is a Fellow of the American Association for the Advancement of Science. She is also a Biomaterials Science and Engineering Fellow of the International Union of Societies for Biomaterials; and a Fellow of the American Academy of Dental Materials, the American Academy of Pediatric Dentistry, the American College of Dentists and the American Institute for Medical and Biological Engineering.

Also of note, Dr. Spencer and colleagues received a patent in 2013 for "Novel Monomer for Dental Adhesive," and she received a 2014-2015 Fulbright Scholar Award to continue her biomaterials collaborations with the Universidade de São Paulo in Brazil.

Dr. Spencer received her B.S. degree with teacher certification in biology and related sciences from the University of Missouri-Columbia. She later received a D.D.S. degree from UMKC, an M.S. in pediatric dentistry from the University of Minnesota, an M.S. in materials engineering from Rensselaer Polytechnic, and an interdisciplinary Ph.D. degree in oral biology and physics from UMKC.

A colleague external to KU, in nominating her, described her as innovative, productive and an excellent teacher. "She is an excellent researcher and has the rare ability of being able to explain her research – and its implications – to a broad audience. Above all else, [she] is a kind and delightful person . . . an outstanding scientist, an excellent colleague, and a mentor for many."

Irvin Youngberg Award in Applied Sciences

Based on his research achievement, Stephen Welch, Professor of Agronomy at Kansas State University, is presented with the Irvin Youngberg Award in Applied Sciences.

Stephen Welch came to K-State in 1977 from a postdoctoral fellowship at Michigan State University. Originally an assistant professor of entomology, he advanced to full professor in 1981. Since 1990 he has been a member of the Department of Agronomy.

Dr. Welch is a leader in the use of mathematical models to study the relationships between genomics and the physiological traits plants show under various climatic environments.

Applications of these methods are central to developing higher yielding crop breeding and management programs in Kansas and elsewhere. Rising global demand for food, and well-documented changes in global climate, give his work great urgency.

Dr. Welch's research is highly interdisciplinary. His collaborators – at K-State and elsewhere – include researchers in agriculture, veterinary medicine, engineering and the arts and sciences. The Ecological Genomics Institute at K-State, which he helped steer, received early funding from the multi-campus, multi-disciplinary NSF EPSCoR Program.

Other career highlights at K-State include serving as co-PI on an international five-year NSF Frontiers of Integrative Biological Research project, which involved multiple disciplines in the study of a species' molecular ecology. A signal accomplishment of this project was to discover the close relationship between the genetic network control of plant flowering and certain mathematical formulas for predicting flowering time that had been developed over a span of three centuries, largely by trial and error.

Dr. Welch is also a member of the Executive Committee of the multidisciplinary Consortium for Global Research on Water-based Economies, which combines hydrological, economic, demographic and crop models to study aquifer depletion issues.

Finally, he has served as a member of the Genotype-to-Phenotype Grand Challenge Project of the iPlant Collaborative, a \$50 million, 10-year program funded by the NSF and aimed at focusing high-end supercomputing on difficult biological tasks. The Challenge involves a relationship that is fundamental to the study of inheritance of traits and their evolution.

Dr. Welch's scholarship is recognized internationally. In addition to a long list of journal articles, conference papers and chapters on multiple topics, he co-edited the book *Computational Methodologies in Gene Regulatory Networks* in 2009. He also served for three years as editor and publisher of *AgComp Bulletin*, an early journal dedicated to agricultural computing.

As noted, Dr. Welch has roots in both the biological sciences and information technology. He received his B.S. degree at Michigan State University in computer science, at a time when mainframes ruled and the term "supercomputer" was just coming into use. He stayed on at Michigan State and received his Ph.D. degree in zoology.

In 2011 he spent a sabbatical as a visiting scholar at the University of Texas Advanced Computing Center and the University of Wyoming. He has also served as interim director of K-State Computing and Network Services and computer systems coordinator for the Kansas Cooperative Extension Service.

A K-State colleague, in nominating him, notes, "It is no surprise . . . in a state that values plant agriculture, that Steve is a valued member of our research community. . . [He] is the most thoughtful, insightful and robust scholar I know."