

2014 Distinguished Scientific Achievement Award

Presented to Wesley E. Bolch

(K. Nelson)

Wesley Emmett Bolch is a professor of biomedical engineering at the University of Florida. He received his PhD in radiological physics from the University of Florida in 1988. In the same year, he began his academic career as an assistant professor in the Department of Nuclear Engineering at Texas A&M University.

In recognition of his early scientific achievements, Wes was awarded the Health Physics Society Elda E. Anderson Award in 1993 as the Outstanding Young Health Physicist. Wes, John Auxier, and Ronald Kathren are the only individuals to have received both the Elda E. Anderson and Distinguished Scientific Achievements awards.

The son of health physics professor Emmet Bolch, Wes was introduced to the field of engineering and radiological protection at an early age. As a high school student, he accompanied his father and graduate students as they took soil radium and ground exposure measurements. In addition, he accompanied his father in conducting environmental surveillance of the Crystal River Nuclear Power Station.

Wes and his graduate students at the University of Florida are best known for their work in the fields of internal and external dosimetry. In particular, Wes is recognized both domestically and internationally for the development and application of voxel phantoms for dosimetry. The Non-Uniform Rational Basis Spine (NURBS) phantoms, developed by Wes and his colleagues, have replaced the stylized phantoms first introduced in the 1970s and are now recognized by the International Commission on Radiological Protection (ICRP). These phantoms are based on actual age-matched human CT imaging anatomy, with supporting skeletal dosimetry models based upon CT and microCT imaging of cadavers. A new generation of computational phantom, these are easily scalable and can be used for determining the dose to any organ or tissue in different-sized patients. These phantoms have also been used to calculate S values for a wide variety of deposited radionuclides using Monte Carlo techniques.

Wes has demonstrated a strong commitment to the radiation safety and medical physics professions and has published over 160 peer-reviewed journal articles. He currently serves on the editorial boards of several journals: Health Physics, Physics in Medicine and Biology, The Journal of Nuclear Medicine, and Radiation and Environmental Biophysics.

A member and secretary of Committee 2 of ICRP, Wes is currently the chair of Task Group 4 on Dose Calculations (DOCAL). He was elected to the council of the National Council on Radiation Protection and Measurements in 2005 and is a member of the Program Area Committee 6 on Measurements and Dosimetry. He also serves on the Medical Internal Radiation Dose (MIRD) Committee and has been instrumental in harmonizing MIRD and ICRP dosimetry methodology.

Like his father before him, Wes' greatest satisfaction comes from seeing his students graduate and go on to successful careers. Since 1988, his students have given nearly 250 presentations at scientific meetings and have made their own mark in the scientific community.

Wes has been described by professional colleagues as "infectiously enthusiastic," providing "inspirational insights," "competent," "innovative," and "caring" in his work. One of his peers said it best when he noted in his recommendation letter, "He is simply as good as it gets." His body of work and recognition from domestic and international scientific colleagues make Professor Bolch an excellent choice as the recipient of this year's HPS Distinguished Scientific Achievement Award.