

# Eduardo B. Farfán

---

Department of Physics  
Idaho State University  
Campus Box 8106  
Pocatello, ID 83209-8106

Phone: (208) 282-3364  
Fax: (208) 282-4649  
E-Mail: farfan@physics.isu.edu

---

- EDUCATION**
- Doctor of Philosophy (PhD) in Nuclear and Radiological Engineering** (GPA 3.83), University of Florida, Gainesville, FL. August 2002 (**Specialization in Internal Radiation Dosimetry**). Dissertation: *Quantifying Uncertainties in Probabilistic Lung Dosimetry with Application to Beta-Particle and Gamma-Ray Emitters*.
- Master of Engineering (ME) in the health physics area of Nuclear and Radiological Engineering** (GPA 3.83), University of Florida, Gainesville, FL. May 1999 (**Specialization in Nuclear Power Production and Nuclear Waste Management**). Thesis: *Probabilistic Lung Dosimetry with Application to Uranium Dioxide and Uranium Octoxide Aerosols*.
- Bachelor of Science (BS) in Nuclear Engineering** (GPA 3.57), University of Florida, Gainesville, FL. August 1997.
- EXPERIENCE**
- Assistant Professor** - Idaho State University, College of Arts and Science, Department of Physics, Campus Box 8106, 785 So. 8th St., Physical Science Building #3, Pocatello, ID 83209-8106. June 2005 – Present.
- Faculty Advisor** - Nuclear Engineering Technology Faculty Advisor, Excelsior College, Nuclear Engineering Technology, 7 Columbia Circle, Albany, NY 12203. June 2005 – Present.
- Online Professor** - Excelsior College, Nuclear Engineering Technology, 7 Columbia Circle, Albany, NY 12203. August 2004 – Present.
- Assistant Professor** - Tenure-track position at South Carolina State University, School of Engineering Technology and Sciences, Nuclear Engineering Program, 300 College Street NE, Orangeburg, SC 29117. August 1, 2002 – June 1, 2005.
- Researcher** - Savannah River Site, Savannah River Technology Center, Aiken, SC. Project: *Code development and probabilistic tests of current ICRP models using autopsy data*. Research funded by the US Department of Energy. May 15 – August 15, 2004.
- Researcher** - Project: Assessment of computers codes used to model the releases of radionuclides. PI: EF Farfán and Co-PI: VS Valdes. Research funded by the US Nuclear Regulatory Commission. October 1, 2003 – May 1, 2004.
- Researcher** - Savannah River Site, Savannah River Technology Center, Aiken, SC. Project: *Determination of uncertainties associated with organ burdens*. Research funded by the South Carolina Universities Research and Education Foundation, US Department of Energy, and Westinghouse Savannah River Company. May 19 – August 12, 2003.
- Department of Energy Practicum**, Lawrence Livermore National Laboratory, Chemistry and Materials Science Department, Analytical and Nuclear Division, Livermore, CA. *MCNP4C Simulations of cargo containers containing a hidden nuclear weapon* (Homeland Security). July 2002.

**Department of Energy Practicum**, Los Alamos National Laboratory, Health Physics Measurement Group, Radiation Instrumentation and Calibration Team, Los Alamos, NM. *MCNPX simulation of the human body based on CT scan data of a real person (NORM Model) for internal/external dosimetry and shielding construction purposes.* May - June 2002.

**Internship**, Lovelace Respiratory Research Institute, Albuquerque, NM. *Risk uncertainty characterization for health effects of inhaled PuO<sub>2</sub> and determination of probabilistic dose conversion factors for weapons-grade plutonium radioisotopes (Pu-238, Pu-239, Pu-240, and Am-241).* April 2002.

**Research Assistant**, University of Florida, Nuclear and Radiological Engineering, Gainesville, FL, August 1997 - March 2002. *Internal radiation dosimetry - Computer modeling and code development. Absorbed fraction calculations for internal photon and electron emitters in stylized anthropometric models using MCNP. Development of a revised ICRP-66 human respiratory tract model for the extrathoracic and thoracic airways.*

**Department of Energy Practicum**, Centers for Disease Control and Prevention, National Center for Environmental Health, Radiation Studies Branch, Atlanta, GA. (Summer 1999 & 2000). *Internal dose reconstruction estimates for Native-Americans around the Hanford Site.*

**PATENT**                    **LUDUC (Lung Dose Uncertainty Code)**. TE Huston and **EB Farfán**. University of Florida. US Patent Application Number: 60/415,359. October 1, 2002.

**COMPUTER PROFICIENCY**        **Nuclear and Radiological Programs:** MCNP4C; MCNPX; VisEd; LUDEP; CIDER; GENII; RESRAD, MicroShield; COBRA; PHROG; PHOENIX; KFLUX; HOTSPOT; RASCAL.  
**Operating Systems:** DOS; Windows 3.x, 2000; XP, NT; Unix  
**Languages:** Visual Basic 6/NET, FORTRAN 77, 90, & 95; C; C++; Visual C++; PASCAL  
**Software:** MATLAB; Maple; SAS; LabVIEW; SigmaPlot; Lotus; BestFit; Crystal Ball; MS Word; MS Excel; MS Power Point; Word Perfect; Adobe Photoshop; Paint Shop.

**RELEVANT COURSES TAKEN**        **Practical MCNP for the Radiological Engineer, Health Physicist, and Medical Physicist.** HRS-4 Health Physics Measurements Group. Radiation Instrumentation and Calibration Team. Los Alamos, NM. May 2002.

**Microsoft Visual Basic 6.0** (Basic, Intermediate, and Advance). Microsoft Certified Solution Provider - AppDev. Orlando, FL. October 2001.

**COURSE DEVELOPMENT**        **Health Physics Society – Professional Enrichment Program (PEP) Course:** *Health Physics Archeology: Dose Reconstructions Conducted by the Centers for Disease Control and Prevention.* Authors: E.H. Donnelly and **EB Farfán**. 48<sup>th</sup> Annual Meeting of the Health Physics Society. San Diego, CA. July 20-24, 2003.

**PUBLICATIONS**            WE Bolch, **EB Farfán**, CH Huh, TE Huston, and E Bolch, “*Influences of parameter uncertainties within the ICRP-66 respiratory tract model: Particle deposition.*” (Health Phys. 81: 378-394, 2001).

WE Bolch, TE Huston, **EB Farfán**, WG Vernetson, and E Bolch, “*Influences of parameter uncertainties within the ICRP-66 respiratory tract model: Particle clearance.*” [Health Phys. 84(4): 421-435, 2003].

**EB Farfán**, TE Huston, WE Bolch, WG Vernetson, and E Bolch, “*Influences of parameter uncertainties within the ICRP-66 respiratory tract model: Regional Tissue Doses for  $^{239}\text{PuO}_2$  and  $^{238}\text{UO}_2/^{238}\text{U}_3\text{O}_8$ .*” [Health Phys. 84(4): 436-450, 2003].

TE Huston, **EB Farfán**, E Bolch, and WE Bolch, “*Influences of parameter uncertainties within the ICRP-66 respiratory tract model: A parameter sensitivity analysis.*” [Health Phys. 85(5): 553-566, 2003].

CH Huh, MS Bhutani, **EB Farfán**, and WE Bolch, “*Individual variations in mucosa and total wall thickness in the stomach and rectum assessed via endoscopic ultrasound.*” (Physiol. Mea. 24 N15-N22, 2003).

**EB Farfán**, E.Y. Han, WE Bolch, CH Hun, TE Huston, WE Bolch, and E Bolch, “*A revised stylized model of the adult extrathoracic airways for use with the ICRP-66 respiratory tract model.*” [Health Phys. 84(4): 337- 352, 2004].

**EB Farfán**, WE Bolch, TE Huston, DR Rajon, C Huh, and E Bolch, “*Uncertainties in electron-absorbed fractions and lung doses from inhaled beta-emitters.*” [Health Phys. 88(1): 37-47, 2005].

**PRESENTATIONS** **EB Farfán**, TR La Bone, SP LaMont, WE Bolch, “*Comparison of results from the ICRP models with USTUR data using the probabilistic computer code IBUC.*” 49<sup>th</sup> Annual Meeting of the Health Physics Society, Washington, DC. July 11-15, 2004. [Supplement to Health Phys. 86 (6): S165 (2004) – MPM-E.3].

KN Beharry, R Ali, CD Tillie, JM Nelson, **EB Farfán**, VS Valdes, “*Assessment of HOTSPOT to identify its attributes and limitations when modeling releases of radioactive materials.*” 49<sup>th</sup> Annual Meeting of the Health Physics Society, Washington, DC. July 11-15, 2004. [Supplement to Health Phys. 86 (6): S136 (2004)].

JM Nelson, KN Beharry, R Ali, CD Tillie, VS Valdes, **EB Farfán**, “*Improving the user interface for the HABIT 1.1 TACT5 Module.*” 49<sup>th</sup> Annual Meeting of the Health Physics Society, Washington, DC. July 11-15, 2004. [Supplement to Health Phys. 86 (6): S136 (2004)].

**EB Farfán**, TR La Bone, SP LaMont, WE Bolch, “*Probabilistic tests of current ICRP models for the behavior of inhaled  $^{238}\text{PuO}_2$  using autopsy data from the USTUR Case 0259.*” 49<sup>th</sup> Annual Meeting of the Health Physics Society, Washington, DC. July 11-15, 2004. [Supplement to Health Phys. 86 (6): S146 (2004)].

R. Ali, CD Tillie, JM Nelson, KN Beharry, **EB Farfán**, VS Valdes, “*Assessment of RASCAL used in modeling the release of radionuclides.*” 49<sup>th</sup> Annual Meeting of the Health Physics Society, Washington, DC. July 11-15, 2004. [Supplement to Health Phys. 86 (6): S137 (2004)].

CD Tillie, JM Nelson, KN Beharry, R. Ali VS Valdes, **EB Farfán**, “*Assessment of MACCS2 Module to calculate individual health and economic effects from an accidental release of radioactive materials.*” 49<sup>th</sup> Annual Meeting of the Health Physics Society, Washington, DC. July 11-15, 2004. [Supplement to Health Phys. 86 (6): S137 (2004)].

TR La Bone, WL Findley, **EB Farfán**, “*Uncertainties in organs estimated with PAS.*” Health Physics Society Midyear Conference – Air Monitoring and Internal Dosimetry, Augusta, GA. February 8-11, 2004.

**EF Farfán**, TE Huston, WE Bolch, E Han, K. Beharry, ZM Jupiter, “*Influence of age, gender, and exertion level on dose uncertainties associated with the inhalation of weapons-grade PuO<sub>2</sub>*”, 48<sup>th</sup> Annual Meeting of the Health Physics Society, San Diego, CA. July 19-24, 2003. [Supplement to Health Phys. 84 (6) S171 (2003)].

**EF Farfán**, TE Huston, CH Huh, WE Bolch, EY Han, E Bolch, “*Uncertainties in electron absorbed fractions within the ICRP-66 respiratory tract model*”, 47<sup>th</sup> Annual Meeting of the Health Physics Society, Tampa, Florida. June 16-20, 2002. [Supplement to Health Phys. 82 (6) S126 (2002)].

EY Han, **EF Farfán**, WE Bolch, TE Huston, E Bolch, “*A revised dosimetric model of the extrathoracic and thoracic airways.*” 47<sup>th</sup> Annual Meeting of the Health Physics Society, Tampa, Florida. June 16-20, 2002. [Supplement to Health Phys. 82 (6) S127 (2002)].

**EF Farfán**, TE Huston, WE Bolch, EY Han, DA Rajon, KP Kim, “*Beta-particle Dosimetry within the ICRP-66 Respiratory tract model: Impact of uncertainties in electron absorbed fractions on lung dose estimates.*” 47<sup>th</sup> Annual Meeting of the Health Physics Society, Tampa, Florida. June 16-20, 2002. [Supplement to Health Phys. 82 (6) S126 (2002)].

EH Donnelly, **EF Farfán**, CW Miller, WE Bolch, “*Comparison of thyroid dose estimates to Native Americans from Hanford releases to the air using reference versus tribal-specific diets.*” 47<sup>th</sup> Annual Meeting of the Health Physics Society, Tampa, Florida. June 16-20, 2002. [Supplement to Health Phys. 82 (6) S120 (2002)].

CH Huh, MS Bhutani, WE Bolch, **EF Farfán**, E. Bolch, “*Individual Variations in mucosa and total wall thickness within the stomach and rectum assessed via endoscopic ultrasound.*” 47<sup>th</sup> Annual Meeting of the Health Physics Society, Tampa, Florida. June 16-20, 2002. [Supplement to Health Phys. 82 (6) S127 (2002)].

CH Huh, **EB Farfán**, TE Huston, and WE Bolch, “*ICRP-66 respiratory tract model: a parameter sensitivity analysis.*” 46<sup>th</sup> Annual Meeting of the Health Physics Society, Cleveland, Ohio, June 10-14, 2001. [Supplement to Health Phys. 80 (6) S106 (2001)].

**EB Farfán**, CH Huh, TE Huston, and WE Bolch, “*ICRP-66 respiratory tract model: uncertainties in the dosimetry model.*” 46<sup>th</sup> Annual Meeting of the Health Physics Society, Cleveland, Ohio, June 10-14, 2001. [Supplement to Health Phys. 80 (6) S106 (2001)].

CH Huh, WE Bolch, MS Bhutani, and **EB Farfán**, “*In-vivo measurements of the GI tract wall thicknesses using endoscopic ultrasound: applications to internal dosimetry.*” 46<sup>th</sup> Annual Meeting of the Health Physics Society, Cleveland, Ohio, June 10-14, 2001. [Supplement to Health Phys. 80 (6) S125 (2001)].

CH Huh, **EB Farfán**, TE Huston, WE Bolch, “*ICRP-66 Respiratory Tract Model: Uncertainties in the Clearance Model.*” 45<sup>th</sup> Annual Meeting of the Health Physics Society, Denver, Colorado, June 25-29, 2000. [Supplement to Health Phys. 78 (6) S98 (2000)].

**EB Farfán**, CH Huh, TE Huston, WE Bolch, “*ICRP-66 Respiratory Tract Model: Uncertainties in the Deposition Model.*” 45<sup>th</sup> Annual Meeting of the Health Physics Society, Denver, Colorado, June 25-29, 2000. [Supplement to Health Phys. 78 (6) S98 (2000)].

**EB Farfán**, WE Bolch, “*Probabilistic Lung Dosimetry with Application to Uranium Dioxide and Octoxide.*” 44<sup>th</sup> Annual Meeting of the Health Physics Society, Philadelphia, Pennsylvania, June 27 – July 1, 1999. [Supplement to Health Phys. 76 (6) S121 (1999)].

**HONORS**

**U.S. Department of Energy Nuclear Engineering and Health Physics Fellowship**, Office of Nuclear Energy, Science, and Technology, 1999-2002.

**U.S. Department of Energy Applied Health Physics Fellowship**, Oak Ridge Institute for Science and Education, 1997-1999.

**Dean’s List**, University of Florida, Gainesville, FL, 1997.

**Dean’s List**, University of Florida, Gainesville, FL, 1996.

**LANGUAGES**

**Russian & Spanish**

**AFFILIATIONS**

American Nuclear Society, Health Physics Society, Alpha Nu Sigma