



**Georgia Institute  
of Technology**

College of Engineering  
Office of the Dean

June 30, 1997

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852

Subject: Georgia Institute of Technology  
License No. R-97. Docket No. 50-160  
Notification of Change in Operator Status

Gentlemen:

This is to notify the NRC that on June 30, 1997, Dr. R.A. Karam will retire and relinquish the directorship of the Neely Nuclear Research Center, Georgia Tech Research Reactor.

Effective July 1, 1997, Dr. Nolan Hertel will be appointed director. For your review his curriculum vita is attached.

Should you have any questions, please call me at (404) 894-2972.

Sincerely,

J. Narl Davidson  
Interim Dean

/cg

Enclosure

cc: Ed McAlpine, USNRC Region II  
101 Marietta Street, NW, Suite 200  
Atlanta, GA 30323

030066

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# NOLAN E. HERTEL

Associate Professor

Nuclear Engineering and Health Physics Programs  
George W. Woodruff School of Mechanical Engineering  
Georgia Institute of Technology, Atlanta, Georgia 30332-0405  
O: (404) 894-7717 Fax: (404) 894-3733 H: (404) 416-7746  
Email: nolan.hertel@me.gatech.edu

## EDUCATIONAL HISTORY

Ph.D.	Nuclear Engineering	University of Illinois at Urbana-Champaign	1979
M.S.	Nuclear Engineering	Texas A&M University	1975
B.S.	Nuclear Engineering	Texas A&M University	1973

### **Theses:**

M.S. *Fast Neutron Spectra Produced by a 49-MeV Deuteron-Beryllium Reaction and its Modification by Selected Absorbers.*

Ph.D.: *High-Energy Neutron Transport through Tungsten and Iron.*

## RELEVANT EXPERIENCE

<u>Title</u>	<u>Organization</u>	<u>Years</u>
<i>Associate Professor</i>	<b>Georgia Institute of Technology</b> Nuclear Engineering and Health Physics Program G. W. Woodruff School of Mechanical Engineering	1/1993 - Present
	Chair, Health Physics and Radiological Engineering Research Group	1994 - 1996
	Chair, Nuclear Engineering, Radiological Engineering and Health Physics Group	1996 - present
<i>Associate Professor</i>	<b>The University of Texas - Austin</b> Nuclear Engineering Area Mechanical Engineering Department	9/1985 - 12/1992
<i>Assistant Professor</i>	<b>The University of Texas - Austin</b> Nuclear Engineering Area Mechanical Engineering Department	1/1979 - 8/1985
<i>Research Assistant</i>	<b>University of Illinois</b> Nuclear Engineering Department	6/1975 - 1/1979
<i>Research Assistant</i>	<b>Texas A&amp;M University</b> Nuclear Engineering Department	6/1974 - 5/1975
<i>Graduate Assistant</i>	<b>Texas A&amp;M University</b> College of Engineering CO-OP/JETS Programs	5/1973 - 5/1974

## Consulting

Technical Education Research Center (Teaching Module Preparation)	1980
Scientific Measurement Systems, Inc. (Neutron Applications in Industry)	1982
Texas Low-Level Radioactive Waste Disposal Authority (Review Technical Basis for the Texas Below Regulatory Concern Disposal Rule)	1986 - 1987

Allied Signal Inc., Engineered Materials Sector (Radiological Assessment of Contaminated Wood Pallet Burial)	1989
Schaeffer Associates for Odetics Advanced Intelligent Machines Division (Dosimetry Algorithm Development)	1991 - 1993
Baker-Hughes Incorporated, TN Technologies (Consultation on Doppler Flowmeter Use)	1992
University of New Mexico (Review of Radiation Transport Code Assessment)	1994
B&W Nuclear Environmental Services Incorporated (Radiological Assessment for the Demolition of the 232-F Stack Destruction) at Savannah River Site)	1995
IT Corporation (Review of Health Risk Assessment)	1996
NAC International (Skyshine Code Development, Benchmarking Shielding Analyses of Spent Fuel Dry Storage Containers Shielding Analyses)	1996 - 1997
Schaeffer Associates for CRC Research Institute (Japan) (First-Collision Code Development Plan)	1997

**HONORS AND AWARDS**

Tau Beta Pi	
Phi Eta Sigma	
Phi Kappa Phi	
Moody Science Foundation Scholar	1969 - 1973
Texas A&M University Former Students Association Scholarship	1969 - 1973
Summa Cum Laude Graduate, Texas A&M University	1973
University of Illinois Fellow	1976 - 1977
PHS Radiation Oncology Trainee	1977 - 1978
Best Paper Award, Radiation Protection and Shielding Division, American Nuclear Society Summer Meeting	1978
University Research Institute/Faculty Research Assignment (Battelle Pacific Northwest Laboratories)	1987 - 1988
Northwest Organization of Colleges and Universities for Science/Faculty Sabbatical Leave (Battelle Pacific Northwest Laboratories)	1987 - 1988
Best Paper Award, Topical Meeting of the American Nuclear Society Radiation Protection and Shielding Division: <i>New Horizons in Radiation Protection and Shielding</i>	1992
Best Paper Award, 1996 Winter Meeting of the American Nuclear Society, Radiation Protection and Shielding Division	1996

**PROFESSIONAL SOCIETY MEMBERSHIPS**

- American Nuclear Society
- Atlanta Section of the American Nuclear Society
- Health Physics Society
- Atlanta Chapter of the Health Physics Society

**PROFESSIONAL REGISTRATION**

Texas State Board of Registration for Professional Engineers, Certificate No. 49365	6/1981 - 3/1994
Professional Engineer, State of Georgia, License No. 021261	6/1994 - present

**AREAS OF INTEREST**

- Neutron and Gamma-Ray Transport and Measurement
- Accelerator Applications
- Radiation Shielding
- High-Energy Neutron/Particle Interactions
- Health Physics
- Radiation Instrument Response and Spectra Unfolding
- Radiation Dosimetry and Phantoms

Low-Level Radioactive Waste Disposal  
Radiological Assessment  
Health Risk Assessment  
Radiation Instrument Calibration

### RESEARCH GRANTS

Bureau of Engineering Research: *New Faculty Research Initiation Grant: Development of Measurement Capabilities for Integral Testing of Nuclear Data*, September 1979 - September 1980, \$3,000.

The University of Texas Special Equipment Allocation to the Mechanical Engineering Department: *Upgrade of NE-213 Spectrometry System*, November 1979 - September 1980, \$15,130.

National Science Foundation: *Research Initiation: High-Energy Neutron Transport Studies*, CPE-8006674, May 1980 - October 1982, \$39,975.

University Research Institute: *Construction and Calibration of an Associated Particle System to Monitor a DT Neutron Source*, April 1982 - September 1982, \$4,354.

Sun Oil Special Summer Research Grant: *Investigation of Nuclear Data for Well Logging*, June 1982 - September 1982, \$6,500.

Texas Atomic Energy Research Foundation: *Neutron Multiplication by Beryllium*, June 1982 - September 1982, \$5,000.

The University of Texas Special Equipment Allocation to the Mechanical Engineering Department: *Nuclear Engineering Teaching Laboratory: Undergraduate Laboratory Stations*, September 1982 - September 1983, \$41,000.

The University of Texas Special Equipment Allocation to the Mechanical Engineering Department: *Neutron Generator Upgrade*, September 1982 - September 1983, \$7,000.

The University of Texas Special Equipment Allocation to the Center for Fusion Engineering: *Fusion Neutronics Equipment*, September 1982 - September 1983, \$20,000.

Texas Atomic Energy Research Foundation: *Development of Fusion Blanket Neutronics Program*, June 1983 - September 1983, \$7,000.

Texas Atomic Energy Research Foundation: *Calibration of Neutron Counting Equipment for Beryllium Multiplication Experiment*, September 1983 - January 1985, \$9,044.

Texas Low-Level Radioactive Waste Disposal Authority: *An Evaluation of Methods of Low-Level Radioactive Waste Disposal*, September 1984 - June 1985, \$9,736.

The University of Texas Special Equipment Allocation to the Mechanical Engineering Department: September 1984 - September 1985, \$6,850.

IBM PROJECT QUEST: *Implementation of Bonner Sphere Unfolding Codes on an IBM PC*, January 1985 - April 1986, \$6,300.

National Science Foundation: *Neutron Multiplication by Beryllium*, January 1985 - December 1987, \$139,557.

University of Rochester Strong Memorial Hospital (PHS Consortium): *Energy Spectral Measurements of Clinical Fast Neutron Beams: NE-213 Measurements*, May 1985 - May 1986, \$13,720.

Grove Engineering: *Microcomputer Shielding and Radiation Software Package*, December 1986, \$2000.

Texas Low-Level Radioactive Waste Disposal Authority: *BRC Radwaste Stream Computer Modeling*, June 1987 - August 1987, \$9,745.

Texas Advanced Technology Program: *Nuclear Technology Study of the Fusion Ignition Experiment IGNITEX*, June 1988 - May 1990, Co-PI/PD with Dr. G.A. Hallock and Dr. R. Carrera, \$344,110.

Texas Low-Level Radioactive Waste Disposal Authority: *Performance Assessment and Monitoring of the Ambient Radiation Levels for a Prospective Low-Level Radioactive Waste Disposal Site*, June 1, 1988 - August 31, 1989, Co-PI/PD with Dr. R. J. Charbeneau, \$194,035.

Texas Low-Level Radioactive Waste Disposal Authority: *Performance Assessment and Monitoring of the Ambient Radiation Levels for a Prospective Low-Level Radioactive Waste Disposal Site*, September 1, 1989 - August 31, 1990, Co-PI/PD with Dr. R. J. Charbeneau, \$121,539.

Texas Low-Level Radioactive Waste Disposal Authority: *Performance Assessment and Monitoring of the Ambient Radiation Levels for a Prospective Low-Level Radioactive Waste Disposal Site*, September 1, 1990 - August 31, 1991, Co-PI/PD with Dr. R. J. Charbeneau, \$80,464.

Texas Low-Level Radioactive Waste Disposal Authority: *Performance Assessment and Monitoring of the Ambient Radiation Levels for a Prospective Low-Level Radioactive Waste Disposal Site*, September 1, 1991 - August 31, 1992, Co-PI/PD with Dr. R. J. Charbeneau, \$124,766.

University of Texas Health Science Center at San Antonio: *PET Cyclotron Vault Neutron Shield Analysis*, April 1, 1992 - August 31, 1992, \$5,114.

Texas Low-Level Radioactive Waste Disposal Authority: *Performance Assessment and Monitoring of the Ambient Radiation Levels for a Prospective Low-Level Radioactive Waste Disposal Site*, September 1, 1992 - August 31, 1993, Co-PI/PD with Dr. R. J. Charbeneau, \$107,216.

ERDA/Westinghouse Savannah River Company: *Consolidated Incineration Facility Health Risk Assessment*, February 22, 1994 - September 30, 1995, \$278,618.

ERDA/Westinghouse Savannah River Company: *Benchmarking the LAHET Elastic Scattering Model for APT Design Applications*, July 12, 1996 - November 30, 1996, \$30,674.

"Benchmarking of the LAHET Code System and CINDER 90 for APT Applications", Accelerator Production of Tritium Southeast Consortium, start July 1, 1997, \$65,000.

### Pending

"Creation of a Set of Benchmark Experiments to Validate the LAHET Code System", Accelerator Production of Tritium Southeast Consortium, \$65,000. Start July 1, 1997. With Farzad Rahnema.

Centers for Disease Control: *Community Education and Training to Address Environmental Health Research Near Department of Energy Nuclear Weapons Facilities*, 1 year, \$179,000.

DOE Health Physics Faculty Research Award Program, Effective Dose Equivalent Personal Dosimeter Development, 1 year, \$49,859.

### Concept Papers in Review

"Personal and Area Dosimetry for the APT", Accelerator Production of Tritium Southeast Consortium, \$99,970, FY 97/98. With S.-H. Fong and C.-K. Wang.

"Radiological Hazard Analysis of the Acceleration Production of Tritium Facility", Accelerator Production of Tritium Southeast Consortium, \$128,972, FY 98. With S.-H. Fong and M. T. Ryan.

In collaboration with Dr. Don Burge (WSRC) "Characterization of Neutron and Gamma Radiation Generated by Pu in Vitrified and Ceramic Waste Forms", DOE Plutonium Focus Area, FY 98, \$85,000.

### GRADUATE DEGREE SUPERVISION

#### University of Texas at Austin

Yukitaka Kunimoto: *Waste Stream Toxicities in Thorium Fuel Cycles for Pressurized Water Reactors*, M.S. Thesis, May 1980.

Steven J. Ganthner: *The Effects of Initial Enrichment in the Accelerator Breeding of Nuclear Reactor Fuel*, M.S. Thesis, August 1980.

William E. Murphie: *Measured Neutron and Gamma-Ray Spectra in a Tissue-Equivalent Liquid Irradiated with 14-MeV Neutrons*, M.S. Thesis, December 1980.

Regina M. Laucius: *Calculation of the Differential Efficiencies of Organic Scintillators to Neutrons Above 10 MeV*, M.S. Thesis, May 1983.

Yukitaka Kunimoto: *A Core Inventory Model for Fuel Trajectory Analysis in Fusion-Fission Symbiotic Systems*, Ph.D. Dissertation, August 1983.

Richard D. Savage: *Error Analysis For a Hydrogen Filled Benjamin Counter*, M.S. Thesis, December 1984.

Noreen D. Poor: *A Comparison of Low-Level Radioactive Waste Storage and Disposal Techniques*, M.S. Thesis, August 1985.

Richard S. Hartley: *Neutron Multiplication by Beryllium*, Ph.D. Dissertation, December 1987.

Maureen A. McGraw: *Exposure Assessment for Disposal of Low-Level Radioactive Soil*, M.S. Thesis, December 1989 (Civil Engineering Department, Co-Advisor with Dr. R. J. Charbeneau).

Christine G. Pollard: *Analysis of the Biotic Pathways for a Texas Low-Level Radioactive Waste Disposal Facility*, M.S. Thesis, August 1990 (Biological Sciences, Co-Advisor with Dr. C. McMillan).

Edward Takesuye: *Photon Dose Equivalents in Phantoms*, M.S. Thesis, May 1991.

George A. Miller, Jr.: *Gadolinium Neutron Capture Therapy*, Ph.D. Dissertation (Biomedical Engineering), May 1992.

Bassel K. Nabelssi: *Calculations of Dose Equivalent Quantities for High-Energy Neutrons Using Homogeneous and Heterogeneous Phantoms*, Ph.D. Dissertation, May 1993.

Arnold Preece: *Use of the GENII Computer Code for Dosimetric Pathway Analysis of a Low-Level Radioactive Waste Disposal Facility*, M. S. Thesis, May 1993.

Hector R. Vega-Carrillo: *Characterization of the Neutron Field in the Vicinity of PET Cyclotrons*, Ph.D. Dissertation, May 1995. Co-advisor with Dr. B. W. Wehring.

#### Georgia Institute of Technology

Timothy H. Fox: *Computer Treatment Planning System and Optimization of Dose Distributions for a Patient Rotator Used in Stereotatic Radiosurgery*, Ph.D. Thesis, March 1994. Co-Advisor with Dr. Kimberly J. Kearfott.

H. Michelle Coward: *Health Risk Assessment of Radioactive Emissions from the Consolidated Incineration Facility at the Savannah River Site*, M.S. Thesis, March 1995.

Edward A. Hoffman: *Low Activation Tokamak Reactors*, M.S. Thesis, September 1995. Co-advisor with Dr. W. M. Stacey, Jr.

John L. Lobdell: *Dose Rate and Spectral Photon Measurements Around a Large BWR Using a Tissue-Equivalent Plastic Scintillation*, Ph.D. Thesis, December 1995.

Karen L. Jones: *A Biokinetic Model for Cs-137 in the Fetus*, Ph.D. Thesis, December 1995. Co-advisor with Dr. Rodney D. Ice.

Frederic J. Mis: *Development of an Imaging Camera for Non-Destructive Examination*, Ph.D. Thesis, March 1996.

Ken Veinot: *Multisphere Neutron Spectra Measurements Near a High Energy Medical Accelerator*, MS Thesis, September 1996.

Jeremy Sweezy: *A Multisphere Neutron Spectrometer Measurement of the Georgia Tech Research Reactor Biomedical Facility*, MS Thesis, September 1996. Co-Advisor with Dr. Ratib Karam.

Mary E. Napolitano: *Mammographic X-ray Unit Peak Kilovoltage and Spectral Quality Determination Using Film Densitometry*, Ph.D. Thesis, June, 1997. Co-advisor with Dr. Jon H. Trueblood (Medical College of Georgia).

#### In Progress:

Luke I. McCormick: *Comparison of Gamma Dose from Discretely and Homogeneously Contaminated Soils*, M.S. Thesis (anticipated September 1997).

Tanya Palmateer Oxenberg: *The Effectiveness of Catch Boxes in Testing Depleted Uranium Projectiles to Minimize the Impact to the Environment*, M.S. Thesis (anticipated September 1997).

Wayne Simpkins: *The Influence of Adipose Tissue on Neutron Dose Equivalent*, Ph.D. Thesis Proposal in Preparation.

### PROFESSIONAL ACTIVITIES

#### American Nuclear Society

- Member: *Ad Hoc* Committee on Guidelines for Student Travel Support, Radiation Protection and Shielding Division, American Nuclear Society. 1985 - 1986
- Member: Program Committee, Radiation Protection and Shielding Division of the American Nuclear Society, 1987 Topical Meeting on Theory and Practices in Radiation Protection and Shielding. 1985-1987
- Member: Program Committee, Radiation Protection and Shielding Division, American Nuclear Society. 1985 - Present
- Paper Reviewer: Lithium Blanket Program at the LOTUS Neutron Source Facility, Nuclear Technology Experiments and Facilities, and Fusion Nucleonics Sessions, Seventh Topical Meeting on the Technology of Fusion Energy, American Nuclear Society, Reno, NV. June 1986
- Session Organizer/Chairman: *External Dosimetry, Phantoms, and Dose Equivalence*, Radiation Protection and Shielding Division, Winter American Nuclear Society/European Nuclear Society Meeting, Washington, DC. 1988
- Member: Executive Committee, Radiation Protection and Shielding Division, American Nuclear Society. 1988 - 1991
- Judge: Best Paper, Radiation Protection and Shielding Division, 1988 Winter American Nuclear Society/European Nuclear Society Meeting, Washington, D.C. 1988

Session Chairman: <i>De Minimis and Below Regulatory Concern</i> , Radiation Protection and Shielding Division, Winter American Nuclear Society Meeting, San Francisco, CA.	1989
Session Chairman: <i>Radiological Assessments for Decontamination, Decommissioning, and Disposal</i> , Radiation Protection and Shielding Division, Winter American Nuclear Society, Washington, D. C.	1990
Session Organizer/Chairman: <i>Moderating Neutron Detectors</i> , Radiation Protection and Shielding Division, American Nuclear Society, Winter American Nuclear Society Meeting, San Francisco, CA (organized three sessions, chaired one).	1991
Judge: Best Paper, Radiation Protection and Shielding Division, 1991 Winter American Nuclear Society Meeting, San Francisco, CA.	1991
Member: Program Committee, 1992 Topical Meeting -- <i>New Horizons in Radiation Protection and Shielding</i> , Radiation Protection and Shielding Division, American Nuclear Society, Pasco, WA, April 26 - May 1.	1990 - 1992
Member: <i>Ad Hoc</i> Health Physics Society Liaison Committee, Radiation Protection and Shielding Division, American Nuclear Society.	1991 - 1996
Session Chairman: <i>Radiation Sources and Dosimetry</i> , 1992 Topical Meeting -- New Horizons in Radiation Protection and Shielding, Radiation Protection and Shielding Division, American Nuclear Society, Pasco, WA, April 26 - May 1.	1992
Technical Program Chairman: Eighth International Conference on Radiation Shielding (Sponsored by the Radiation Protection and Shielding Division, American Nuclear Society), Arlington, TX, April 24 - 27.	1994
Judge: Best Paper Award, Radiation Protection and Shielding Division, Winter Meeting, Chicago, IL.	1992
Vice Chair, Radiation Protection and Shielding Division, American Nuclear Society.	1994 - 1995
Judge, Best Paper Award, Radiation Protection and Shielding Division, American Nuclear Society, Winter Meeting, Washington, D.C.	1994
Session Organizer (2 Sessions)/Chair (1 Session), <i>Photon and Electron Transport Methods and Applications I and II</i> , Radiation Protection and Shielding Division, American Nuclear Society, Winter Meeting, San Francisco, CA.	1995
Chair, Radiation Protection and Shielding Division, American Nuclear Society.	1995 - 1996
Judge, Best Paper Award, Radiation Protection and Shielding Division, American Nuclear Society, Winter Meeting, San Francisco, CA.	1995
Member, Everitt P. Blizzard Scholarship Committee, Radiation Protection and Shielding Division, American Nuclear Society.	1995 - 1997
Session Chairman, <i>Computational Methods for Medical Applications</i> , 1996 Topical Meeting, <i>Achievements and Applications in Radiation Protection and Shielding</i> , Radiation Protection and Shielding Division, American Nuclear Society, North Falmouth, MA, April 21-25, 1996.	1994 - 1996
Chair, Nominating Committee, Radiation Protection and Shielding Division	1996
Member, Program Committee, Accelerator Applications Technical Group, American Nuclear Society	1996 - present



American Nuclear Society (Continued)

Member, Technical Program Committee, 1998 American Nuclear Society, Radiation Protection and Shielding Division Topical Meeting, Technologies for the New Century, Nashville, TN, April 12-23, 1998. 1996 - 1998

Atlanta Local Section

Vice Chair, Atlanta Local Section, American Nuclear Society. 1995 - 1996

Chair, Atlanta Local Section, American Nuclear Society 1997 - 1998

Health Physics Society

Member: National Standards Committee, Health Physics Society. 1989 - 1995

Paper Reviewer: *Health Physics Journal*. 1990 - 1993, 1995

Member, Academic Program Committee, Health Physics Society. 1996 - 1999

Local Chapter

Member: Publications Committee, South Texas Chapter of Health Physics Society. 1986 - 1989

Vice President, Atlanta Chapter of the Health Physics Society. 1995 - 1996

President, Atlanta Chapter of the Health Physics Society 1996 - 1997

Department of Energy

Invited Participant: 11<sup>th</sup> Department of Energy Workshop on Personnel Neutron Dosimetry, Las Vegas, NV, June 4-7. 1991

Proposal Reviewer: Applied Health Physics Program, Department of Energy, EH - 41. 1992

DOE Program Reviewer: Effective Dose Equivalent Dosimeter System Tests, Applied Health Physics Research Program, Battelle Pacific Northwest National Laboratories. 1993

Proposal Reviewer: DOE Environmental Restoration and Waste Management Junior Faculty Award Program. 1993

Panel Moderator and Reviewer: Health Sciences Merit Review Panel, Department of Energy's Environmental Management Science Program Proposal Review. 1997

Other

Reviewer: National Science Foundation. 1982, 1985

Member: Local Program Committee, IEEE 11<sup>th</sup> Symposium on Fusion Engineering, Austin, TX, November 18-22. 1985

Co-Chairman: Poster Session: *Engineering Problems of Future Fusion Reactors: Experimental and Diagnostics Systems Design*, IEEE 11<sup>th</sup> Symposium on Fusion Engineering, Austin, TX, November 18-22. 1985

**Other (Continued)**

Expert Witness: Texas Senate Committee on NORM and NARM Waste Hearing, San Antonio, TX, October 5.	1989
Paper Reviewer, <i>Medical Physics Journal</i> .	1993 - 1996
Roster, International Atomic Energy Agency's Experts Program.	1994 - present
Battelle Pacific Northwest National Laboratory Affiliate Staff Scientist.	1994 - present
Paper Reviewer, <i>Nuclear Instruments and Methods Journal</i>	1995
Visiting Scientist, Los Alamos National Laboratory	1996 - 1998

**TEACHING**

**Short Courses:**

- Basic Radiological Health Course: Texas Department of Health, Bureau of Radiation Control, 1981.
- Techniques in Nuclear Radiation Shield Analysis (UIT): June 1987, October 1988, September 1989, May 1990, July 1992, July 1993. (Organizer)
- BRC Radwaste Disposal (Below Regulatory Concern): February 1988, November 1988, October 1989. (Organizer)

Georgia Institute of Technology

Lecture 3.7, Treatment of Gaseous Waste, International Atomic Energy Agency: Interregional Training Course on Management of Radioactive Waste from Nuclear Power Plants, Argonne National Laboratory, August 1993.

Basic Health Physics Course, Westinghouse Savannah River Company, March - April, 1994.

**THE UNIVERSITY OF TEXAS AT AUSTIN**

**Undergraduate Courses:**

ME 319	Mechanical Engineering Computations
ME 337C	Introduction to Nuclear Power Systems
ME 337D	Radiation and Radiation Protection
ME 339	Heat Transfer and Rate Processes
ME 361E	Nuclear Reactor Engineering
ME 361F	Nuclear Engineering: Introductory Laboratory
ME 445	Fluid Mechanics
ME 177K, 377K	Projects in Mechanical Engineering
ME 379M	Introduction to Health Physics

**Graduate Courses:**

ME 380M	Research
ME 388Q.1	Nuclear Reactor Theory I
ME 388Q.2	Nuclear Reactor Theory II
ME 388Q.3	Analytical and Numerical Techniques in Reactor Engineering
ME 388Q.4	Neutron and Nuclear Physics
ME 388R.1	Nuclear Radiation Shielding
ME 389R.1	Nuclear Engineering Laboratory
ME 397.1	Projects
ME 397K	Nuclear Engineering Graduate Seminar

ME 397.26	Nuclear Engineering Health Physics
ME 397.9	Nuclear Fuel Cycles
ME 698A	Thesis
ME 698B	Thesis
BIOL 698B	Thesis (Biological Sciences Graduate Program)
ME 999W	Dissertation Research
BME999R	Dissertation Research (Biomedical Engineering Program)

## THE GEORGIA INSTITUTE OF TECHNOLOGY

### Undergraduate Courses

NE 1100	Energy and Engineers in Society
NE 4803	Special Topics: Radioactivity in the Environment
HP 4412	Principles of Health Physics
ME 2016	Computer Applications

### Graduate Courses

HP 6405	Health Physics Practice
HP 6641	Environmental Surveillance and Waste Disposal
NE 6126	Monte Carlo Methods in Nuclear Engineering
NE 6132	Nuclear Fuel Management
NE 6261	Radiation Shielding Design
NE/HP 6753	Advanced Nuclear/Radiological Engineering Design
NE/HP 6751	Advanced Radiation Detection
HP 8113	Special Topics: Radiological Assessment

## PUBLICATIONS

1. "Fast Neutron Spectra for the TAMVEC 50-MeV  $d^+$ -Be Neutron Treatment Beam" (abstract), *Med. Phys.* 2, 152 (1975). With V. A. Otte, J. B. Smathers, A. R. Smith and P. R. Almond.
2. "Thick Target Yields from  $D^+$ -Be Reactions at  $E_d=16, 30$  and  $40$  MeV", *Symposium on Neutron Cross-Sections 10-40 MeV*, BNL-NCS-50681, Brookhaven National Laboratory, New York, May 1977. With R. G. Graves, J. B. Smathers, V. A. Otte, P. R. Almond and W. Grant.
3. "Photoneutron and Cf-252 Neutron Dose Comparisons for Radiotherapy Shielding", *Trans. Am. Nucl. Soc.* 28, 620 (1978). With B. W. Wehring.
4. "Comparison of VITAMIN-C Master Library Reaction Cross Sections for Iron with Multigroup Cross Sections Generated by the VIM Monte Carlo Code", *Proceedings of the RSIC Seminar-Workshop on Multigroup Nuclear Cross-Section Preparation and Data Library Manipulation Techniques*, March 14-16, 1978, Oak Ridge, Tennessee, ORNL-RSIC-41. With B. W. Wehring and R. H. Johnson.
5. "Effectiveness of Tungsten and Lead in Attenuation of Photoneutrons" (abstract), *World Federation in Nuclear Medicine and Biology Second International Congress*, September 17-21, 1978, Washington, DC. With R. Mertogul and B. W. Wehring.
6. "Integral Tests of ENDF/ B-IV High-Energy Neutron Cross Section Data for Tungsten", *Trans. Am. Nuc. Soc.*, 32, 631 (1979). With B. W. Wehring and J. J. Dornig.
7. "TLD Measurements in an Iron Sphere Containing a DT Source", *Trans. Am. Nuc. Soc.*, 32, 632 (1979). With R. H. Johnson, K. R. Koch and B. W. Wehring.
8. "Benchmark Shielding Problems Obtained from Integral Tests of Neutron Cross Sections", *Trans. Am. Nuc. Soc.*, 33, 666 (1979). With B. W. Wehring, J. J. Dornig, D. T. Ingersoll and R. H. Johnson.

9. "Measurements and Analyses of Neutron Transport Through Iron", *Proceedings of the International Conference on Nuclear Cross Sections for Technology*, Knoxville, Tennessee, 1979, NBS Special Publication 594, pp. 563-567. With R. H. Johnson, J. J. Dornig and B. W. Wehring.
10. "Absolute Monitoring of DD and DT Neutron Fluences Using the Associated Particle Technique", *Nucl. Instr. Meth.*, 172, 501 (1980). With B. W. Wehring.
11. "Gamma-Ray Spectra Measured in Tissue-Equivalent Medium Irradiated with Neutron Radiotherapy Sources", *Trans. Am. Nuc. Soc.*, 35, 457 (1980). With J. B. Smathers and R. G. Graves.
12. "In Phantom Photon Spectra Measurements for High-Energy Neutron Therapy Sources", *Proceedings: Fourth Symposium on Neutron Dosimetry*, June 1-5, 1981, Neuherberg/Munich, Federal Republic of Germany, EUR 7448en. With J. B. Smathers and R. G. Graves.
13. "Measurements of Neutron and Gamma-Ray Spectra in a Phantom Irradiated with 14-MeV Neutrons" (abstract), 26th Annual Meeting of the Health Physics Society, Louisville, Kentucky, *Health Physics*, 41, 887 (1981). With W. E. Murphie and R. J. Calhoun.
14. "A Core Inventory Model for Fuel Trajectory Analysis in Fusion-Fission Symbiotic Systems", *Trans. Am. Nuc. Soc.*, 41, 178 (1982). With Y. Kunimoto and J. W. Davidson.
15. "Calculation of the Differential Efficiencies of Organic Scintillators to Neutrons Above 10 MeV", *Trans. Am. Nuc. Soc.*, 43, 625 (1982). With R. M. Laucius and J. W. Davidson.
16. "The Use of Neutron and Gamma-Ray NE-213 Spectral Measurements and Calculations to Obtain Dosimetric Information for DT Neutrons", *Med. Phys.*, 10, 66 (1983). With W. E. Murphie.
17. "Bonner Ball Detection Responses for Neutrons from Thermal Energies to 17.3 MeV" (abstract), Health Physics Society Annual Meeting, Baltimore, Maryland, *Health Physics*, 45, 192 (1983). With J. W. Davidson.
18. "NE-213 Response Matrix for Neutron Spectrometry Up to 50-MeV" (abstract), Health Physics Society Annual Meeting, Baltimore, Maryland, *Health Physics*, 45, 192 (1983). With J. W. Davidson and R. M. Laucius.
19. "An NE-213 Response Matrix to 50 MeV", *Trans. Am. Nuc. Soc.*, 45, 607 (1983). With J. W. Davidson and R. M. Laucius.
20. "An Equal Probability Neutron Detection System Using Bonner Spheres", *Trans. Am. Nuc. Soc.*, 45, 609 (1983). With J. W. Davidson.
21. "The Effect of Cadmium Covers on Bonner Sphere Responses", (abstract) *Proceedings of the Personnel Radiation Dosimetry Symposium*, Knoxville, Tennessee, October 1984. With J. W. Davidson.
22. "The Response of Bonner Spheres from Thermal Energies to 17.3 MeV", *Nucl. Instr. Meth.*, A238, 509 (1985). With J. W. Davidson.
23. "A Comparison of Low-Level Radioactive Waste Management Alternatives" *Proceedings of the Waste Management '85 Conference*, Tucson, Arizona, (1985). With N. D. Poor.
24. "A Comparison of Low-Level Radioactive Waste Storage and Disposal Alternatives" (abstract), Health Physics Society Annual Meeting, Chicago, Illinois, (1985). With N. D. Poor.
25. "Transmission of Fast Neutrons through an Iron Sphere", *Fusion Tech.*, 9, 345 (1986). With R. H. Johnson, J. J. Dornig and B. W. Wehring.
26. "Calibration of Bonner Spheres at The University of Texas" (abstract), Health Physics Society Annual Meeting, Pittsburgh, Pennsylvania, *Health Physics*, 50, Suppl. 1, 522 (1986). With A. D. Gaines.

27. "How to Evaluate a Low-Level Radioactive Waste Disposal Technology", (abstract), Health Physics Society Annual Meeting, Pittsburgh, Pennsylvania, *Health Physics*, 50, Suppl. 1, 568 (1986). With N. D. Poor.
28. "Dosimetry in the Vicinity of TEXT", Proceedings of the 20th Midyear Symposium of the Health Physics Society, *Health Physics of Radiation Generating Machines*, Reno, February 1987, CONF-8602106. With H. W. Bryant, T. L. Bauer and J. W. Jagger.
29. "Neutron Measurements in the Vicinity of Medical Electron Accelerators", Proceedings of the 20th Midyear Symposium of the Health Physics Society, *Health Physics of Radiation Generating Machines*, Reno, February 1987, CONF-8602106. With R. S. Hartley, T. L. Bauer, J. L. Horton and V. A. Otte.
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31. "Determining Calibration Factors for Bonner Spheres", *Trans. Am. Nucl. Soc.*, 55, 220 (1987). With R. S. Hartley and A. D. Gaines.
32. "Transportation Worker Exposure from the Transport of BRC Radwaste", *Proceedings of the Waste Management '88 Symposium*, Tucson, February 28-March 3, 1988. With C. G. Pollard and B. A. Gantner.
33. "Calculations of Dosimetric Quantities for Cf-252 Neutron Sources", (abstract), 1988 Health Physics Society Annual Meeting, Boston, Massachusetts, *Health Physics*, 54, S46 (1988). With J. C. McDonald.
34. "Measured and Calculated Neutron Leakage Multiplication for Beryllium Shells", *Trans. Am. Nucl. Soc.*, 56, 123 (1988). With R. S. Hartley and J. W. Davidson.
35. "Analysis of the Texas Beryllium Neutron Leakage Multiplication Experiments", (abstract) Eighth Topical Meeting on the Technology of Fusion Energy, Salt Lake City, Utah, October 9-13, 1988. With J. W. Davidson and R. S. Hartley.
36. "Dose Equivalent and Phantoms in Conventional Calibration Practice", *Trans. Am. Nucl. Soc.*, 57, 219 (1988). With J. C. McDonald.
37. "Neutron Multiplication in Beryllium", *Fusion Engr. Des.*, 10, 133 (1989). With R. S. Hartley and J. W. Davidson.
38. "Nuclear Radiation Analysis in the IGNITEX Ignition Experiment", *Fusion Tech.*, 15, 459 (1989). With T. Parish and R. Carrera.
39. "Ignition Experiment in a Single-Turn-Coil Tokamak", *Fusion Tech.*, 15, 402 (1989). With R. Carrera, M. Driga, J. H. Gully, J. Hopf, K.T. Hsieh, E. Montalvo, C. Ordonez, T. Parish, M. N. Rosenbluth, W. A. Walls, W. F. Weldon, M. Werst and H. H. Woodson.
40. "IGNITEX Experiment", (abstract) *16th IEEE International Conference on Plasma Science*, Buffalo, New York, May, 1989, IEEE-89-CH-2760-7, 58 (1989). With R. Carrera, M. Barrington, R. Bickerton, W. D. Booth, Y. Chen, J. Dong, M. Driga, S. Eways, G. Fu, J. Gully, G. Hallock, J. Helton, L. Hively, J. Howell, K. Hsieh, J. Ling, G. Miller, E. Montalvo, C. Ordonez, D. Palmrose, T. Parish, M. Rosenbluth, S. Tamor, D. Tesar, J. Van Dam, P. Varghese, A. Walls, W. Weldon, M. Werst and H. Woodson.
41. "Nuclear Radiation Analysis of the IGNITEX Experiment", (abstract) *16th IEEE International Conference on Plasma Science*, Buffalo, New York, May, 1989, IEEE-89-CH-2760-7, 59 (1989). With D. Palmrose, T. Parish, R. Carrera and G. Miller.
42. "Environmental Monitoring at the Potential Low-Level Radioactive Waste Disposal Site in Texas", (abstract), 1989 Health Physics Society Annual Meeting, Albuquerque, New Mexico, *Health Physics*, 56, Suppl. 1, S68 (1989). With C. G. Pollard and J. Maldonado.

43. "New Dose Equivalent Quantities: Possible Directions for Neutron Dosimetry", 1989 Health Physics Society Annual Meeting, Albuquerque, New Mexico, *Invited Talk* in Special Session on the Implementation of the ICRU-39 Dose Equivalent Quantities.
44. "The Impact of Dose Rates Due to Decay Photons on the Design of the IGNITEX Device", *Proceedings of the 13th International Symposium on Fusion Engineering*, Knoxville, Tennessee, October 2 - 6, 1989. With D. E. Palmrose, T. A. Parish and R. Carrera.
45. "Preliminary Analysis of Radiological Hazards for the Fusion Ignition Experiment IGNITEX", *Proceedings of the 13th International Symposium on Fusion Engineering*, Knoxville, Tennessee, October 2 - 6, 1989. With T. A. Parish, B. Shofolu, R. Carrera, R. Charbeneau, D. Klein and S. Fetter.
46. "Multidimensional Radiation Analysis for the Fusion Ignition Experiment IGNITEX", *Proceedings of the 13th International Symposium on Fusion Engineering*, Knoxville, Tennessee, October 2 - 6, 1989. With G. A. Miller, R. Carrera and T. A. Parish.
47. "Calculations of Anisotropy Factors and Dose Equivalents for Unmoderated Cf-252 Sources", *Radiation Protection Dosimetry*, 32, 77 (1990). With J. C. McDonald.
48. "Performance Assessment of the Potential Low-Level Radioactive Waste Disposal Site in Texas", *Proceedings of the Waste Management '90 Symposium*, Tucson, Arizona, February 25 - March 1, 1990. With R. J. Charbeneau, M. Becker and C. G. Pollard.
49. "Texas Low-Level Radioactive Waste Disposal Site Performance Assessment", (abstract) 1990 Health Physics Society Annual Meeting, Anaheim, California, June 24-28, 1990, *Health Physics*, 58 Suppl. 1, S35 (1990). With R. J. Charbeneau, M. Becker and C. G. Pollard.
50. "Benchmarking Shield Calculations for 46-MeV (p,Be) Neutron Sources with Bonner Sphere Measurements", (abstract) 1990 Health Physics Society Annual Meeting, Anaheim, California, June 24-28, 1990, *Health Physics*, 58 Suppl. 1, S53 (1990). With J. Smathers and L. Meyers.
51. "Bonner Sphere Neutron Measurements of the Environments Created by a 46-MeV (p,Be) Neutron Therapy Facility", (abstract) 1990 Health Physics Society Annual Meeting, Anaheim, California, June 24-28, 1990, *Health Physics*, 58 Suppl. 1, S53 (1990). With J. Smathers and L. Meyers.
52. "Assessment of Structural Activation in the Operation of the Fusion Ignition Experiment IGNITEX", (abstract) 1990 IEEE International Conference on Plasma Science, IEEE-90-CH (1990). With D. E. Palmrose, T. A. Parish and R. Carrera.
53. "Neutron Streaming Analysis in the Fusion Ignition Experiment IGNITEX", (abstract) 1990 IEEE International Conference on Plasma Science, IEEE-90-CH (1990). With T. Parish, B. Shofolu, W. D. Booth and R. Carrera.
54. "Performance Assessment for Radwaste Disposal", *Proceedings of the National Conference on Environmental Engineering*, American Society of Civil Engineers, Arlington, VA, July 9 - 11, 1990, p. 65-72. With R. J. Charbeneau, C. G. Pollard and M. Becker.
55. "Texas' Performance Assessment Work", *Twelfth Annual DOE Low-Level Waste Management Conference*, Chicago, IL, August 28-29, 1990. With R. J. Charbeneau and C. G. Pollard.
56. "Biotic Pathways for a Texas Low-Level Radioactive Waste Disposal Facility", *Trans. Am. Nucl. Soc.*, 62, 468 (1990). With C. G. Pollard, R. J. Charbeneau and M. Becker.
57. "Atmospheric Dispersion Doses for a Texas Low-Level Radioactive Waste Disposal Site", *Trans. Am. Nucl. Soc.*, 62, 469 (1990). With B. Nabelssi, R. J. Charbeneau and C. G. Pollard.
58. "Modeling a Roll-Off Container Transportation Worker Dose Scenario for BRC Radwaste", *Trans. Am. Nucl. Soc.*, 62, 460 (1990). With W. G. Lovely, J. R. Jupena and C. G. Pollard.

59. "Methods for the Calibration of Photon Personnel Dosimeters in Terms of the Ambient Dose Equivalent", *Radiation Protection Dosimetry*, 32, 149 (1990). With J. C. McDonald.
60. "Evaluation of Radiation Streaming Effects in A Single-Turn Ignition Tokamak", *Fusion Tech.*, 19, 1938 (1991). With Y. Watanabe, T. A. Parish, W. D. Booth, R. Carrera and B. Shofolu.
61. "Calculated Dosimetric Quantities for D<sub>2</sub>O-Moderated Cf-252 Sources", *Radiation Protection Dosimetry*, 35, 23 (1991). With J. C. McDonald.
62. "Methods for the Calibration of Neutron Personnel Dosimeters in Terms of the Ambient Dose Equivalent", *Radiation Protection Dosimetry*, 37, 149 (1991). With J. C. McDonald.
63. "Neutron Fluence to Dose Conversion Factors: Which Ones?", Eleventh DOE Workshop on Personnel Neutron Dosimetry, June 3-7, 1991, Las Vegas, NV, CONF-9106235 (PNL-SA-21596).
64. "Performance Assessment of Normal Release Scenarios at a Potential Texas Low-Level Radioactive Waste Disposal Site", (abstract), 1991 Summer Meeting of the Health Physics Society, Washington, D. C., July 21-26, 1991, *Health Physics*, 60 Suppl. 2, S45 (1991). With C. G. Pollard and R. J. Charbeneau.
65. "Estimating Skyshine Doses at the Boundaries of Low-Level Radioactive Waste Disposal Facilities Due to Partially Covered Wastes", (abstract), 1991 Summer Meeting of the Health Physics Society, Washington, D. C., July 21-26, 1991, *Health Physics*, 60 Suppl. 2, S46 (1991). With B. L. Hall, R. J. Charbeneau and C. G. Pollard.
66. "Zinalco and Zircaloy-4 Nuclear Characterization", *J. Radioanal. Nucl. Chem.*, 150, 1 (1991). With H. R. Vega Carrillo, C. Rios Martinez, L. L. Quirino Torres and F. Iskander.
67. "Application of Bonner Sphere Spectrometer in Californium-252 Spectrometry", *Revista Mexicana de Fisica*, 37, 659 (1991). With H. R. Vega Carrillo, C. R. Martinez and L. L. Quirino Torres.
68. "Bonner Sphere Measurements of a D<sub>2</sub>O-Moderated <sup>252</sup>Cf Source", *Trans. Am. Nucl. Soc.*, 64, 472 (1991). With R. C. Woodard, H. R. Vega Carrillo and B. W. Wehring.
69. "Experience Using a Seven Ball Bonner Sphere System to Measure Neutrons in the Energy Range 1-44 MeV", *Proceedings of the New Horizons in Radiation Protection and Shielding Topical Meeting*, American Nuclear Society Radiation Protection and Shielding Division, Pasco, Washington, April 26 - May 1, 1992. With J. B. Smathers and L. T. Myers.
70. "Validation of Beryllium Neutron Multiplication Cross Sections for ENDF/B-V", *Proceedings of the New Horizons in Radiation Protection and Shielding Topical Meeting*, American Nuclear Society Radiation Protection and Shielding Division, Pasco, Washington, April 26 - May 1, 1992. With R. S. Hartley and J. W. Davidson.
71. "Calibration of Personal Dosimeters in Terms of the ICRU Operational Quantities", *Proceedings of the 8th Congress of the International Radiological Protection Association*, Montreal, Canada, May 17-22, 1992. With J. C. McDonald.
72. "Algorithm Development for the Integrated Radiation Mapper Assistant", (abstract), 37th Annual Health Physics Society Meeting, Columbus, Ohio, June 21-25, 1992, *Health Physics*, 62, Suppl. 1, 551 (1992). With N. M. Schaeffer, R. Carlton and L. Tripp.
73. "Neutron Spectra Measured in the Vicinity of a PET Cyclotron", Works-in-Progress presentation at the 37th Annual Health Physics Society Meeting, Columbus, Ohio, June 21-25, 1992. With H. R. Vega Carrillo, B. K. Nabelssi, B. W. Wehring, C. A. Shriver, C. E. Johannes and P. A. Jerabek.
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76. "Effective Dose Equivalents and Effective Doses for Neutrons from 30 to 180 MeV", *Radiation Protection Dosimetry*, 48, 227-243 (1993). With B. K. Nabelssi.
77. "Calculations of Dose Equivalent Quantities for High-Energy Neutrons Using Homogeneous and Heterogeneous Phantoms", (abstract) 38th Annual Meeting of the Health Physics Society Meeting, Atlanta, GA, July 1993, *Health Physics*, 64, Suppl. 1, S48 (1993). With B. K. Nabelssi.
78. "AFITBUNKI: A Modified Iterative Code to Unfold Neutron Spectra from Bonner Sphere Data, (abstract) 38th Annual Meeting of the Health Physics Society, Atlanta, GA, July 1993, *Health Physics*, 64, Suppl. 1, S48 (1993). With S. C. Miller and R. S. Hartley.
79. "Determination of Thermalized Neutron Flux Inside a PET Cyclotron Vault Room", Proceedings of II Congreso Regional de Seguridad Radiologica y Nuclear, Zacatecas, Mexico, pp. 705-707, November 22-26, 1993. With H. R. Vega-Carrillo and B. W. Wehring.
80. "Ambient Dose Equivalent, Deep Dose Equivalent Index, and ICRU Sphere Depth-Dose Calculations for Neutrons from 30 - 180 MeV", *Radiation Protection Dosimetry*, 51, 169-182 (1994). With B. K. Nabelssi.
81. "Room Characterization", *Proceedings of 8th International Conference on Radiation Shielding*, pp. 1098-1102, Arlington, Texas, April 24-28, 1994. With O. J. Lessard, R. S. Hartley, D. C. Moss and C. R. Brennan.
82. "Experimental Characterization of the AFIT Neutron Facility", (abstract) 29th Annual Meeting of the Health Physics Society, San Francisco, CA, June 26-30, 1994, *Health Physics*, 66, Suppl. 1, S80 (1994). With O. J. Lessard, R. L. Hartley, D. C. Moss and C. R. Brennan.
83. "Neutron Dosimetry with <sup>252</sup>Cf-Iron Assemblies", *Radiation Protection Dosimetry*, 58, 283 - 287 (1995). With T. L. Johnson, Y. Lee and J. C. McDonald.
84. "The Georgia Tech Health Physics Program: Building on a Tradition of Excellence", 28th Midyear Topical Meeting of the Health Physics Society, *Health Physics Training and Education*, January 29 - February 1, 1995. With W. J. Wepfer.
85. "The Georgia Tech MS HP Video Program", 28th Midyear Topical Meeting of the Health Physics Society, *Health Physics Training and Education*, January 29 - February 1, 1995. With J. S. Boland and W. J. Wepfer.
86. "Dependence of Fusion Activated Wastes on Material Properties and on Physics and Technological Constraints", *J. Fusion Engineering Design*, 29, 198-206 (1995). With W. M. Stacey and E. A. Hoffman.
87. "Air Emissions Estimate for the Savannah River Site Consolidated Incinerator Facility", *Proceedings of the 1995 Incineration Conference*, May 8-12, 1995, Seattle, WA. With M. G. Robinson, J. A. Mulholland, D. Burge and H. M. Coward.
88. "Health Risk Assessment for the Savannah River Consolidated Incinerator Facility", *Proceedings of the 1995 Incineration Conference*, May 8-12, 1995, Seattle, WA. With H. M. Coward, M. G. Robinson, J. A. Mulholland and D. Burge.
89. "Savannah River Site Consolidated Incineration Facility Health Risk Assessment", (Abstract) Health Physics Society - American Association of Physicists in Medicine Joint Annual Meeting, July 23 - 29, 1995, Boston, MA, *Health Physics* 68, Suppl. 1, S11 (1995). With H. M. Coward, T. M. Evans, M. G. Robinson, J. A. Mulholland and D. A. Burge.
90. "Mammographic X-Ray Beam Peak Determination Using Film Densitometry", Health Physics Society - American Association of Physicists in Medicine Joint Annual Meeting, July 23 - 29, 1995, Boston, MA. With M. E. Napolitano and J. H. Trueblood.



91. "Use of ITS to Develop a Methodology for Determining Mammographic X-ray Spectrum Endpoint Energies", *Trans. Am. Nucl. Soc.* 73, 342 (1995). With M. E. Napolitano and J. Trueblood.
92. "A Tissue Equivalent Detector Photon Response Matrix", *Trans. Am. Nucl. Soc.* 73, 343 - 345 (1995). With J. L. Lobdell.
93. "Paired Thermoluminescent Dosimeter Technique in Bonner Sphere Spectrometry", *Trans. Am. Nucl. Soc.* 73, 356 - 358 (1995). With H. R. Vega-Carrillo, A. J. Teachout and B. W. Wehring.
94. "Radwaste Disposal of Fusion DEMOS", Proceedings of the 12<sup>th</sup> Topical Meeting on the Technology of Fusion Energy, American Nuclear Society, Reno, NV, June 16-20, 1996. With E. A. Hoffman and W. M. Stacey.
95. "Dose Rate and Spectral Measurements Around a Large BWR", 1996 Health Physics Meeting, Seattle, WA, July 22-26, 1996, *Health Physics* 70, Suppl. 1, S89 (1996) (Abstract). With J. L. Lobdell.
96. "Radiological Assessment of a Mixed Waste Incinerator". With T. M. Evans, J. A. Mulholland, H. M. Coward and D. A. Burge. (Won the Radiation Protection & Shielding Division's Best Paper Award, Winter 1996 Meeting.) *Trans. Amer. Nucl. Soc.* 75, 306-307 (1996)
97. "Radioactive Waste Disposal Characteristics of Candidate Tokamak Demonstration Reactors", *Fusion Technology*, 31, 35-61 (1997). With E. A. Hoffman and W. M. Stacey.
98. "Neutron Field Characterization in the Vicinity of a PET Cyclotron", Proceedings of the 13<sup>th</sup> Midyear Topical Meeting of the Health Physics Society: Health Physics of Radiation Generating Machines, San Jose, CA, January 5-8, 1997, pp. 461 - 469 (1997). With H. R. Vega-Carrillo, A. J. Teachout, B. W. Wehring and P. Jerabek.
99. "Photon Spectra and Dose Measurements Using a Tissue-Equivalent Plastic Scintillator", accepted for publication as a technical paper in *Radiation Protection Dosimetry Journal*. With John L. Lobdell. (July 1996).
100. "Dose Rate Measurements in <sup>16</sup>N and Non-<sup>16</sup>N Gamma-Ray Fields", Revised Manuscript in review for publication as a technical paper in *Radiation Protection Dosimetry*. With John L. Lobdell. (June 1997)
101. "Biokinetic Model for <sup>137</sup>Cs in the Fetus", accepted for publication as a technical paper in *Health Physics*. With K. L. Jones and R. D. Ice.
102. "Revision of Georgia Tech's BNE Degree to a BNRE Degree", accepted for presentation at the 1997 Annual Summer Meeting of the American Nuclear Society, Orlando, FL, June 1-5, 1997.
103. "Neutron Spectral Characteristics of the Georgia Tech Research Reactor Bio-Medical Facility", with J. Sweezy, accepted as an oral presentation at the 1997 Health Physics Society Annual Meeting, June 29-July 3, 1997, San Antonio, TX.
104. "Benchmarking the LAHET Elastic Scattering Model", accepted for presentation at the 1997 ANS Embedded Topical Meeting on Accelerator Applications, Albuquerque, NM, November 16-20, 1997. With T. M. Evans, H-H. Hsu, L. Waters, R. E. Prael and M. V. Gregory.
105. "Multisphere Neutron Spectral Measurements Near a High-Energy Medical Accelerator", submitted to *Health Physics Journal* for publication as a technical paper (June 1997). With K. G. Veinot and K. W. Brooks.

#### REPORTS AND OTHER PUBLICATIONS

1. "Glovebox Operations—Advanced", Module 25-2, *Radioactive Material Handling Techniques*, Texas Education Research Center Nuclear Technology Series, 1980.
2. "Precipitation Techniques and Centrifugation", Module 23-4, *Nuclear Chemical Processes*, Texas Education Research Center Nuclear Technology Series, 1980.

3. Progress Report: NSF Grant CPE-8006674, *Research Initiation: High-Energy Neutron Transport Studies*, 1981.
4. Final Technical Description: NSF Grant CPE-8006674, *Research Initiation: High-Energy Neutron Transport Studies*, 1983.
5. Progress Report: NSF Grant CPE-8412072, *Neutron Multiplication by Beryllium*, 1985.
6. Final Report: NSF Grant CBT-8412072, *Neutron Multiplication By Beryllium*, 1988.
7. *Analysis of the Texas Beryllium Neutron Multiplication Experiment*, with J. W. Davidson and R. S. Hartley, Los Alamos National Laboratory, LA-UR-88-3427, 1988.
8. *Radiation Mapping Algorithm Development: Task 1. Source Strength Algorithm*, with N. M. Schaeffer, Schaeffer Associates for Odetics, SA-T9101, 1991.
9. *Radiation Mapping Algorithm Development: Task 2. Volume Radiation Maps, Task 3. Scatter Corrections*, with N. M. Schaeffer, Schaeffer Associates for Odetics, SA-T9102, 1991.
10. *Non-Academic Nuclear Training in the United States: A Survey*, with Robert C. Woodard and N. M. Schaeffer, Schaeffer Associates for Century Research Center Corporation, SA-T9103, 1991.
11. *Neutron Shielding Analysis for the University of Texas Health Science Center at San Antonio Research Imaging Center PET Cyclotron*, Nuclear Engineering Teaching Laboratory Technical Report, The University of Texas at Austin, UT-NETL-NH-T9201, 1992.
12. *Performance Assessment for the Texas Low-Level Radioactive Waste Disposal Facility*, with R. J. Charbeneau and C. G. Pollard, Center for Research in Water Resources, Bureau of Engineering Research, The University of Texas at Austin, Tech-Report CRWR 243, 1993, 115 pp.
13. *Extrapolation to a Demonstration Reactor from the ITER and Advanced Physics and Materials Data Bases*, Fusion Research Center and Nuclear Engineering Program, Georgia Institute of Technology, GTFR 113, April 1994. With W. M. Stacey and E. A. Hoffman.
14. *Dose Comparison for Air Emissions from the Incineration and Compaction of SRS Low-Level Radioactive Job Control Wastes*, Technical Report Prepared for Westinghouse Savannah River Company under ERDA Task Order 94-041, GT/ERDA-94041-001, Rev. 1, October 1994, 29 pp. With H. M. Coward, J. A. Mulholland and M. G. Robinson.
15. *Air Emissions Estimate for the Savannah River Site Consolidated Incinerator Facility, Part 1: Metal and Radionuclide Emissions*, Technical Report Prepared for Westinghouse Savannah River Company under ERDA Task Order 94-041, GT/ERDA-94041-002, Rev. 3, April 1995, 45 pp. With J. A. Mulholland, M. G. Robinson, H. M. Coward and D. I. Nakahata.
16. *Air Emissions Estimate for the Savannah River Site Consolidated Incinerator Facility, Part 2: Organic Emissions*, Technical Report Prepared for Westinghouse Savannah River Company under ERDA Task Order 94-041, GT/ERDA-94041-003, Rev. 3, April 1995, 40 pp. With J. A. Mulholland, M. G. Robinson and H. M. Coward.
17. *Doses from Estimated Air Emissions for the Savannah River Site Consolidated Incineration Facility*, Technical Report Prepared for Westinghouse Savannah River Company under ERDA Task Order 94-041, GT/ERDA-94041-004, August 1994, 25 pp. With H. M. Coward, J. A. Mulholland, and M. G. Robinson.
18. *Health Risk Assessment for the Savannah River Site Consolidated Incineration Facility, Part 1: Radionuclides Emissions*, Technical Report Prepared for Westinghouse Savannah River Company under ERDA Task Order 94-041, GT/ERDA-94041-005, Rev. 1, June 21, 1995, 153 pp. With T. M. Evans, H. M. Coward, J. A. Mulholland, M. G. Robinson, S. Pederson, Salim-Ur-Rehman and C. Baker.

19. *CIF Health Risk Assessment Work Plan for the Savannah River Site Consolidated Incinerator Facility*, Technical Report Prepared for Westinghouse Savannah River Company under ERDA Task Order 94-041, GT/ERDA-94041-006, March 30, 1995. With T. M. Evans and D. A. Burge.
20. *Health Risk Assessment for the Savannah River Site Consolidated Incineration Facility, Part 2: Chemical Emissions*, Technical Report Prepared for Westinghouse Savannah River Company under ERDA Task Order 94-041, GT/ERDA-94041-007, Rev. 1, June 28, 1995, 122 pp. With T. M. Evans, J. A. Mulholland, M. G. Robinson, S. Pederson, Salim-Ur-Rehman and C. Baker.
21. *Radioactive Waste Disposal Characteristics of Candidate Tokamak Demonstration Reactors*, Fusion Research Center and Nuclear Engineering Program, Georgia Institute of Technology, GTFR 119, August, 1995. With E. A. Hoffman and W. M. Stacey.

## ADMINISTRATIVE ACTIVITY

### National Technological University

Member, Health Physics Curriculum Committee 1994 - present

### University of Texas at Austin

#### College:

Nuclear Reactor Committee	1979 - 1989
Cooperative Engineering Education Committee	1989 - 1992
Graduate Student Recruiting Committee	1990 - 1992

#### Department:

Graduate Advisor Evaluation Committee	1980
Graduate Fellowship Selection Committee	1981-1984, 1986 - 1987, 1989 - 1992
Minority Liaison - Mechanical Engineering Department	1981 - 1984
Organization and Administration Committee for Mechanical Engineering Department Five-Year Planning Document	1984
Ad Hoc Committee on Ph.D. Admission Guidelines	1984
Computer Resource and Planning Committee	1985
Mechanical Engineering Computation Laboratory Committee/Mechanical Engineering Computer Committee	1987
Nuclear Program Long-Term Planning Committee	1988
Print Shop Procedures Committee	1990
Graduate Student Recruiting Committee	1990 - 1992

#### Student:

Advisor, Nuclear Block Option	1979 - 1992
Undergraduate Advising	1979 - 1992
Freshman Advising	1980 - 1982
Graduate Student Recruiting, Nuclear Engineering Area	1981 - 1992
Faculty Advisor, Student Engineering Council	1982 - 1984
Evaluation of ME 319 transfer credits	1982 - 1987
Department Coop Engineering Education Advisor	1989 - 1992
Faculty Advisor, Agape Force Ministries	1982 - 1985
Faculty Advisor, Student Chapter - American Nuclear Society	1983 - 1992
Faculty Advisor, Chi Alpha Christian Fellowship	1983 - 1987
Faculty Advisor, Alpha Omega Ministries	1984 - 1986
Faculty Advisor, Chinese for Christ	1985

Georgia Institute of TechnologySchool:

Member, Woodruff School Graduate Committee	1993 - 1995
Chair, Health Physics/Radiological Engineering Research Group	1993 - 1996
Chair, Nuclear Engineering, Radiological Engineering and Health Physics Research Group	1996 - present
Chair, Nuclear Engineering/Health Physics Recruiting Committee	1994 - present
Member, Woodruff School Honors and Awards Committee	1994 - 1995
Chair, Woodruff School Graduate Committee Subcommittee on Nonresident Students	1994 - 1995
Faculty Advisor, Georgia Tech Student Branch of the Health Physics Society	1993 - present
Member, Woodruff School Computer Committee	1995 - present
Member, Woodruff School Faculty Recruiting Committee	1996 - present
Member, Woodruff School Undergraduate Curriculum Committee	1996 - present

Institute

Member, Graduate Committee	1996 - 1997
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PUBLIC SERVICEState and Local:

<i>Oral Presentation</i> on Nuclear Power—Greater South Austin Kiwanis Club	1979
<i>Oral Presentation</i> on Nuclear Power—Sertoma Club of Austin	1979
<i>Discussion Moderator</i> of film "War Games", UT Ideas and Interactions Committee's <i>Ethics of the 80's Symposium</i>	1979
<i>Oral Presentation</i> on "Uranium Mining, Milling and Fuel Fabrication", Summer Workshop for Energy Education Teachers in Texas	1979 - 1988
<i>Participant</i> in Nuclear Power Discussion, NSF Summer Biology Program for High School Students at UT, Evening Bull Session	1980
<i>Oral Presentation</i> on Nuclear Power, Williamson County Amateur Radio Club	1980 - 1981
<i>Oral Presentation</i> on Nuclear Power, Oak Hill Elementary School, 5th Grade	1980 - 1981
<i>Oral Presentation</i> on Nuclear Power, Oak Hill Elementary School, 5th Grade	1981 - 1982
<i>Oral Presentation</i> on Nuclear Power, Linder Elementary School, 3rd Grade	1981 - 1982
<i>Energy and Environment Simulation Presentation</i> , Corpus Christi Science Teacher's Workshop	1981 - 1982
<i>Oral Presentation</i> on Nuclear Power, Linder Elementary School, 3rd Grade	1982 - 1983
<i>Panel Discussion</i> on Nuclear Weapons, Northwest Hills Methodist Church	1984
<i>Member</i> , Board of Trustees, Glad Tidings Assembly of God Church, Inc. Secretary - 1983; Vice President - 1984, 1991	1980 - 1981, 1982 - 1985, 1989 - 1992
<i>Guest</i> on <i>Straight Talk</i> , KIXL Radio Talk Show	1985
<i>Speaker</i> , Graduation Banquet, Church of Glad Tidings	1986
<i>Speaker</i> , Breakfast Meeting, Full Gospel Businessmen's Association	1988

<i>Head Coach</i> , AA League Orioles, Northwest Little League.	1989
<i>Oral Presentation</i> on Nuclear Energy, Science and Technology Week, Round Rock High School, Round Rock, TX.	1989
<i>Oral Presentation</i> on Radiation, High School Science Teacher's Workshop on Nuclear Energy, Austin, TX Independent School District	1991
<i>Oral Presentation</i> on Radiation: What Is It?, High School Science Teacher's Workshop on Nuclear Energy, Round Rock, TX Independent School District	1992
<i>Oral Presentation</i> on Nuclear Energy, North Cobb High School, Kennesaw, GA	1993
Member, Board of Deacons, Calvary Assembly of God Church, Dunwoody, GA	1995 - present

**National and International:**

*Summer Supervision* -Graduate students from Universidad Autonoma de Nuevo Leon 1979 - 1981