

DELIA PEREZ-NUNEZ

Texas A&M University
Dept. of Nuclear Engineering
College Station, TX 77843-3133
979-845-4021

EDUCATION

Texas A&M University, College Station, TX
Ph. D. in Nuclear Engineering 2008
Dissertation topic: *Design, construction and implementation of spherical tissue equivalent proportional counter*

Universidad Central de Venezuela, Caracas, Venezuela
B.Sc. in Physics 1998

Specialization in Instrumentation 1998
Thesis topic: *Relaxation-diffusion processes in natural porous media*

RESEARCH AND PROFESSIONAL EXPERIENCE

Department of Nuclear Engineering, TAMU, College Station, TX 2003-Present

Assistant Research Scientist (2010-Present)

Support Department's development of Medical Physics program (including curriculum and facilities). Laboratory manager for radiation biology and medical physics laboratories. Cognizant of specific safety features of medical physics laboratories, including BSL-2 and BSL-3 laboratories. Participate in the preparation of funded research proposals within the Health and Medical Physics Research Group. Serve as PI on my own proposals, supporting the Department's research portfolio in Medical Physics. Support development and preparation of the medical physics curriculum

Postdoctoral Research Associate (2008-2010)

Conducted research and development for a project funded by NASA, pertaining to a new type of Tissue Equivalent Proportional Counter to measure the quality and quantity of ionizing radiation. The new detector will be used to make radiation protection measurements on the International Space Station and on The Moon. Identified vendors for the project and suppliers for the laboratory. Wrote reports and technical instructions for the sponsor, and held practical sections to train their engineering personnel. Made technical presentations in scientific meetings and published our findings in scientific journals. Kept and maintained the laboratory equipment fully operational and functional. Helped with other NASA funded projects and assisted graduate students to conduct research on these projects. Designed a course for the graduate class laboratory Nuclear Instrumentation, set up the materials and equipment for the laboratory practical sections, assisted the students with experimental setup, and graded the laboratory reports.

Graduate Assistant Non-teaching (2006-2007)

Designed the handout and class visual aids for graduate classes in the following courses: Principles of Radiological Safety; Radiation Measure & Calibration; and Microdosimetry. Researched suitable material to improve and enhance the course contents. Set up materials and equipment for laboratory practical sections for the

undergraduate class Nuclear Detection and Isotope Technology Laboratory, assisted the students with experimental setup, and graded laboratory reports.

Graduate Research Assistant

(2003-2005)

Studied the role of repair in the production of DNA damage in directly irradiated cells. Using post-transcriptional gene silencing technique (RNAi), evaluated the PK status of micronuclei induced in AG 1522 cell populations containing normal and reduced DNA-PK catalytic subunit, using fluorescent microscopy and flow cytometric. Kept the supplies for the lab and helped on regular maintenance.

Lockheed Martin Crew Exploration Vehicle (CEV), Mission Services, Houston, TX

College Student Tech Sr Spec, the Orion

Summer 2007

Designed an innovative new radiation detector system that will form the core of the active radiation monitoring scheme for the Orion vehicle and future Constellation elements (Altair Lunar Lander, and Lunar Surface Systems).

MRI Medical Institute La Florida, Caracas, Venezuela

Part-time Technician in MRI (consultant medical physicist)

1995-2001

Developed and optimized MRI techniques on a 1.5 Tesla Magnetom Siemens, performed routine imaging, angiography, and spectroscopy. Performed quality control on Magnetom adjustment, patient positioning, coil tune-up, imaging, and film exposure. Collaborated as a consultant with a partner company (Suministros Radi) for quality control on radiography, fluoroscopy, braquitherapy, radiotherapy, and nuclear medicine.

Universidad Central de Venezuela, Caracas, Venezuela

1993-2001

Part-time Lecturer, Engineering Dept, Physics Program

(2000-2001)

Taught physics 101 and physics laboratory for freshman engineering students.

Part-time Lecturer, Science Department, Physics Program

(1998-2000)

Taught physics 101 for freshman science major students.

Research assistant, Molecular Physical Lab

(1997-1998)

Studied relaxation-diffusion processes and local field distributions in natural porous media.

Teacher assistant, Science Dept, Physics Program

(1993-1997)

Assisted teaching physics laboratory for freshman science students.

PUBLICATIONS

D. Perez-Nunez, L. Braby. Replacement tissue equivalent proportional counter for the international space station. *Radiat. Prot. Dosimetry*. 143:394-397; 2011

D. Perez-Nunez, L. Braby, E. Semones. Replacement TEPC for the International Space Station: Innovations and Results. *T Am Nucl Soc*. 103: 220-221; 2010

D. Perez-Nunez, L. Braby. Effect of wall thickness on measurement of dose for high energy neutrons. *Health Phys*. 98:37-41; 2010

D. Perez-Nunez, L. Braby. Design, construction and implementation of spherical tissue equivalent proportional counter. *Nuclear Technology*. 168:21-28; 2009

D. Pérez, A. Benavides, M. Martín-Landrove. Relaxation-diffusion processes and local field distributions in natural porous media. In: *Spatially Resolved Magnetic*

Resonance. P. Blümmler, B. Blümich, R. Botto y E. Fukushima, Editors. P. 617-626. Wiley-VCH, 1998

CONFERENCE PROCEEDINGS AND ABSTRACTS

- D. Perez-Nunez, L. Braby. *Replacement Tissue Equivalent Proportional Counter for the International Space Station*, MICROS 2009 - 15th International Symposium on Microdosimetry, 2009, Verona, Italy
- D. Perez-Nunez, L. Braby. *Design, construction and implementation of spherical segmented wall tissue equivalent proportional counter*, 11th Annual International Conference on Radiation Shielding, 2008, Pine Mountain, Georgia
- D. Perez-Nunez, J. Ford, L. Braby. *Effects in PKcs suppressed AG 1522 cells*, 53rd Annual Meeting of the Radiation Research Society, 2005, Denver, Colorado
- L. A. Braby, E. Repnikova, D. Perez-Nunez and J. Ford. *Bystander Effects Following Low LET Irradiation*, 52nd Annual Meeting of the Radiation Research Society, 2004, St Louis, Missouri
- L. A. Braby, J. Ford, D. Perez-Nunez and E. Repnikova. *Mechanistic Modeling of Bystander Effects: An Integrated Theoretical & Experimental Approach -Effects in PKcs suppressed AG 1522 cells*, 12th International Congress of Radiation Research, 2003, Brisbane, Australia
- D. Pérez-Nunez, A. Benavides y M. Martín-Landrove. *Relaxation-Diffusion Processes and Magnetic Field Distributions in Natural Porous Media*
- ENC 38th Experimental Nuclear Magnetic Resonance Conference March 23-27, 1.997, Orlando, Florida
 - 4th International Conference on Magnetic Resonance Microscopy and Macroscopy; September 1997, Albuquerque, New Mexico
 - I Congreso Venezolano de Física. December 1997, Mérida, Venezuela
 - II Jornadas de Investigación Básica Orientada en Exploración y Producción. PDVSA-Intevep. October 1998. Miranda, Venezuela
- Benavides, A. Sena, C. Lopez y D. Pérez: *Utilizacion de la Instrumentacion Virtual para la Determinacion de Resistividades Aparentes*. Presented in the X Congreso Venezolano de Geofisica. April 2000. Caracas, Venezuela.

TRAINING

- Short Course: Radiological Science in the Context of Radiological Terrorism. Columbia University Medical Center in New York City. April 5-6, 2006
- Scholars-in-Training Workshop: "Bench to Bedside". Radiation Research Society 2005 Annual Meeting. October 15, 2005
- Scholars-in-Training Workshop. Radiation Research Society 2004 Annual Meeting. April 23, 2004.
- Educational workshop: Asepsis & Aseptic Techniques with Rodent Surgery. Texas A&M University, Animal Care and Use Training Program. April 7, 2004
- Educational training session: New Investigation / Staff Orientation to Animal Care & Use at Texas A&M. Texas A&M University, Animal Care and Use Training Program. January 29, 2004
- Short course: Space Radiation and its Effects on Systems and Sensors. SPIE. April 23, 2003.

COMPUTER KNOWLEDGE

Fortran 77/90 (basic programming); MS office, Golden software Surfer, SigmaPlot, MapInfo GIS, Quattro Pro, PaintShop Pro, CircuitMaker, AxioVision (Software for digital

microscopy, image processing for the life sciences); EAGLE and ORCAD (design software for electronic circuits); Genie 2000 (acquisition software). In UNIX environment, I am familiar with MCNPX (simulation program); NUMARIS (to process and acquire medical imaging); TECMAG Macintosh interface (NMR data acquisition program).

SCHOLARSHIPS, GRANTS and FELLOWSHIPS

11 th Annual International Conference on Radiation Shielding Student and Young Scientist Travel Grants	April 2008
Research Fellowship by the Radiation & Space Biotechnologies Branch of NASA Ames Research Center	January 2008
2006-2007 Student Fellowship Health Physics Society	September 2006
Radiological Science in the Context of Radiological Terrorism Course Travel Award	April 2006
Research and Presentation Grant	February 2006
Radiation Research Travel Award	October 2005
Women in Nuclear Travel Award	June 2005
International Education Study Grant	February 2004
Roy Post Foundation Scholarship	February 2003
Engineering Graduate Scholarship	January 2003

PROFESSIONAL MEMBERSHIPS

Radiation Research Society
American Nuclear Society ANS
Sociedad Venezolana de Fisica Medica (Venezuelan Association of Medical Physics)

CURRENT RESEARCH SUPPORT:

Leslie Braby (PI) 5/1/2008 – 4/30/2010
Design, Construction and Implementation of Tissue Equivalent Proportional Counter for Space Radiation Dosimetry on the International Space Station
Specific Aims: new type of Tissue Equivalent Proportional Counter to measure the quality and quantity of ionizing radiation. The new detector will be used to make radiation protection measurements on the International Space Station and on The Moon.
Sponsored by NASA JSC through Jacobs Engineering
Project Direct Costs: \$700,000
100% Postdoctoral Research Associate

Leslie Braby (PI) 5/1/2010 – 10/31/2010
A Compact Tissue-Equivalent Proportional Counter for Radiation Dosimetry beyond Low Earth Orbit
Support for this project was provided by the National Space Biomedical Research Institute (NSBRI) through grants, RE01301 and RE01302
100% Assistant Research Scientist

REFERENCES

Dr. Leslie A. Braby
Research Professor, Nuclear Engineering
Texas A&M University
Phone: 979/862-1798
Email: labraby@tamu.edu

Dr. John Ford
Associate Professor, Nuclear Engineering
Texas A&M University
Phone: 979/ 845-6271
Email: ford@ne.tamu.edu

Dr. Stephen Guetersloh
Assistant Professor, Nuclear Engineering
Texas A&M University
Phone: 979/862-5198
E-mail: guetersloh@tamu.edu