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Research Interests

Radiation dosimetry research in the areas of detector development, instrument testing and calibration, international nuclear safeguards support and dating of archaeological artifacts.

Education/Background

Ph.D., Physical Chemistry, 1977, University of Texas at Austin

Certified Health Physicist, 1986 - Present

Selected Technical Documents/Reports/Journals/Abstracts/Presentations:

Books

J. E. Turner, **J. S. Bogard**, J. B. Hunt, and T. A. Rhea, **Problems and Solutions in Radiation Protection**, Pergamon Press, New York NY, 1988.

Journal Publications

G. Espinosa, J.I. Golzarria, T. Martínez, M. Navarrete, **J. Bogard**, G. Martínez, F. Juárez, "Indoor ^{220}Rn and ^{222}Rn concentration measurements inside the Teotihuacan pyramids using NTD and E-PERM methodologies," *Radiation Measurements*, Vol. 40, pp. 646-649 (November, 2005).

Andrew Kramer, Tony Djubiantono, Fachroel Aziz, **James S. Bogard**, Robert A. Weeks, Daniel C. Weinand, Willis E. Hames, J. Michael Elam, Arthur C. Durband, Agus, "The first hominid fossil recovered from West Java, Indonesia," *Journal of Human Evolution*, Vol. 48, Issue 6, pp. 661-667 (June, 2005).

G. Espinosa, J.I. Golzarri, **J. Bogard** and J. García-Macedo, "Commercial optical fiber as TLD material," **Proceedings of the 14th International Conference on Solid State Dosimetry**, New Haven CT, June 27 – July 2, 2004 (to be published in *Radiation Protection Dosimetry*).

G. W. Phillips, J. Span, **J. S. Bogard**, T Vo Dinh, D. Emfietzoglou, R. Devine and M. Moscovitch, "Neutron Spectrometry Using CR-39 Track Etch Detectors", **Proceedings of the 14th International Conference on Solid State Dosimetry**, New Haven CT, June 27 – July 2, 2004 (to be published in *Radiation Protection Dosimetry*).

Robert A. Weeks, **James S. Bogard**, J. Michael Elam, Daniel C. Weinand and Andrew Kramer, "Effects of Thermal Annealing on the Radiation Produced Electron Paramagnetic Resonance Spectra of Bovine and Equine Tooth Enamel: Fossil and Modern," *Journal of Applied Physics*, Vol. 93, No. 12, pp. 9880-9889 (June 15, 2003).

Joon Myong Song, Brian M. Cullum, Joel Mobley, **James S. Bogard**, Marko Moscovitch, Gary W. Phillips, & Tuan Vo-Dinh, "Crossed-beam Two-photon Readout System for Three-dimensional Radiation Dosimeters," *Review of Scientific Instruments*, Vol. 73, No. 12, pp. 4214-4217 (December, 2002).

M. Moscovitch, G. W. Phillips, B. M. Cullum, J. Mobley, **J. S. Bogard**, D. Emfietzoglou and T. Vo-Dinh, "Radiation Dosimetry Using Three-Dimensional Optical Random Access Memories," *Radiation Protection Dosimetry*, Vol. 101, No. 1-4, pp. 17-22 (2002)(Invited).

Andrew Kramer, Daniel C. Weinand, Tony Djubiantono, Fachroel Aziz, Willis E. Hames, J. Michael Elam, **James S. Bogard**, Robert A. Weeks, Iman Sumarinda, Agus, and Arthur C. Durband, "Multidisciplinary Paleoanthropological Excavations in the Rancah District of West Java: Report from the 1999 Field Season," *Geol. Res. Dev. Centre, Spec. Publ.*, 27, pp. 67-79, Department of Energy and Mineral Resources, Bandung, Indonesia (November, 2001).

S. Mahurin, M. McGinnis, **J. S. Bogard**, L. D. Hulett, R. M. Pagni, R. N. Compton, "Effect of Beta Radiation on the Crystallization of Sodium Chlorate from Water: A New Type of Asymmetric Synthesis," *Chirality* Vol. 13 (2001), pp. 636-640.

B. M. Cullum, J. Mobley, **J. S. Bogard**, M. Moscovitch, G. W. Phillips, T. Vo-Dinh, "Three-Dimensional Optical Random Access Memory (3D-ORAM) Materials for Use as Radiation Dosimeters," *Analytical Chemistry* Vol. 72, No. 22 (2000), pp. 5612-5617.

J. Mobley, **J. S. Bogard**, M. Moscovitch, and T. Vo-Dinh, "Signal Expressions and Initial Design for a 3-D ORAM Radiation Dosimeter Reader," *Environmental Monitoring and Remediation Technologies*, T. Vo-Dinh and R. L. Spellacy, Eds., SPIE Publishers, Bellingham, WA, 1999, Vol. 3534.

J. S. Bogard, K. L. Yuracko, M. E. Murray, R. A. Lowden, and N. L. Vaughn, "Application of Life Cycle Analysis: The Case of Green Bullets," *Environmental Management and Health*, Vol. 10, No. 5, (1999).

M. Thein, **J. S. Bogard**, and K. F. Eckerman, "Estimation of Cm-244 Intake by Bioassay Measurements following a Contamination Incident," *Proceedings of the 2nd International Conference on Low-Level Measurements of Actinides and Long-Lived Radionuclides in Biological and Environmental Samples*, Akita City, Japan, May 16-20, 1988, *Journal of Radioanalytical and Nuclear Chemistry*, Vol. 38, No. 1 (1990), pp. 73-81.

Reports

S. M. Bernal and **J. S. Bogard**, *Protocols for Thermoluminescence and Optically Stimulated Luminescence Research at DOSAR, ORNL/TM-2004/172*, Oak Ridge National Laboratory, Oak Ridge, Tennessee, October 2004.

J. S. Bogard, M. E. Murray, R. A. Weeks, D. C. Weinand, J. M. Elam and A. Kramer, *Age of an Indonesian Fossil Tooth Determined by Electron Paramagnetic Resonance, ORNL/TM-2004/85*, Oak Ridge National Laboratory, Oak Ridge, Tennessee, April 2004.

R. R. Rawl, K. F. Eckerman, and **J. S. Bogard**, *A Risk-Informed Basis for Establishing Non-Fixed Surface Contamination Limits for Spent Fuel Transportation Casks, NUREG/CR-6841 (ORNL/TM-2003/225)*, U.S. Nuclear Regulatory Commission Office of Nuclear Regulatory Research, Washington, DC, November, 2003.

J. S. Bogard, *DOSAR/CalLab OPERATIONS MANUAL: Protocols for Operating the Dosimetry Applications Research Calibration Laboratory at Oak Ridge National Laboratory*, ORNL-6904/R2, Oak Ridge National Laboratory, Oak Ridge, Tennessee , March 2000.

Revision 3 - ORNL-6904/R3, October 2003

R. L. Coleman, **J. S. Bogard** and M. E. Murray, *Initial Evaluation of a New Electromechanical Cooler for Safeguards Applications*, ORNL/TM-2002/236, Oak Ridge National Laboratory, Oak Ridge, Tennessee, September, 2002.

R. L. Coleman and **J. S. Bogard**, *Supplemental Release Limits for the Directed Reuse of Lead in Shielding Products by the Department of Energy*, ORNL/TM-2001/36, Oak Ridge National Laboratory, Oak Ridge, Tennessee, August, 2001.

S. Schneider, D. C. Kocher, G. D. Kerr, P. A. Scofield, F. R. O'Donnell, C. R. Mattsen, S. J. Cotter, **J. S. Bogard**, J. S. Bland, C. Wiblin, *Systematic Radiological Assessment of Exemptions for Source and Byproduct Materials*, NUREG 1717, Division of Risk Analysis and Applications, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC, June, 2001.

P. J. Chiaro, Jr., E. R. Tapp, **J. S. Bogard**, *Detector Characterization Report: Response Related to Linear Movement and Radiation Levels for an Oak Ridge National Laboratory (ORNL)-Developed Ion Chamber and a Commercial Ion Chamber*, ORNL/TM-2000/308, Oak Ridge National Laboratory, Oak Ridge, Tennessee, October, 2000.

J. S. Bogard, J. C. Ashley, K. S. Brown, C. A. England, R. N. Hamm, J. E. Turner, *Correlation of External Exposure and Dose Equivalent Rates with Uranium Surface Contamination*, ORNL-6918, Oak Ridge National Laboratory, Oak Ridge, Tennessee, June, 1999.

J. S. Bogard, R. N. Hamm, J. C. Ashley, J. E. Turner, C. A. England, D. E. Swenson, K. S. Brown, *Total Effective Dose Equivalent Associated with Fixed Uranium Surface Contamination*, ORNL-6913, Oak Ridge National Laboratory, Oak Ridge, Tennessee, April, 1997.

J. S. Bogard, R. N. Hamm, K. S. Brown, J. C. Ashley, J. E. Turner, and C. A. England, *Applicability of 1994-1995 USRADS® Surveys of Bear Creek Valley Flood Plain and Operable Unit 1 to the Radiological Characterization of Y-12 Grassy/Wooded Areas*, ORNL-6911, Oak Ridge National Laboratory, Oak Ridge, Tennessee, March, 1997.

Esther M. Kim, Kenneth W. Crase, **J. S. Bogard**, and Kimberly L. McMahan, *Neutron Dose and Spectral Measurements at Oak Ridge National Laboratory's Radiation Calibration Laboratory*, ESH-HPT-960034, Westinghouse Savannah River Company, Aiken, South Carolina, July 10, 1996.

J. S. Bogard, *Review of Uranium Bioassay Techniques*, ORNL-6857, Oak Ridge National Laboratory, Oak Ridge, Tennessee, April, 1996.

S. G. Snow, J. L. Cochran, **J. S. Bogard**, et al., *An Evaluation of the Precision and Accuracy of Portable Field Survey Instrument Measurements of Uranium Contamination on Shoes*, Report Y/DW-104, Union Carbide Corporation, Oak Ridge, Tennessee, December 17, 1982.

Professional Activities/Honors

- Chairman, HPSSC/ANSI N13.27 Working Group, "Performance Specifications for Pocket-sized Alarming Dosimeters/Ratemeters," 1993 - Present
- Chairman, HPSSC/ANSI N13.22 Working Group, "Bioassay Programs for Uranium," 2004 - Present (member 1990-2004)

- Member, NCRP Scientific Committee 57, Task Group 15, "Uranium: Radiation Protection Guidelines," 1988-2004
- Member, American Board of Health Physics Comprehensive Certification Panel of Examiners, 1990-1995
- Member, Health Physics Society Laboratory Accreditation Policy Committee, 1997-1999
- Member, American Board of Health Physics *ad hoc* Committee on Basic Ionizing-Radiation Protection Standards, 1993
- General Chairman, **Fourth Conference on Radiation Protection and Dosimetry**, Orlando, Florida, October 23-27, 1994
- Contributor to the Health Physics Society 'Ask the Experts' web feature (<http://hps.org/>), 2002-present
- Interim Editor for Radiation Fundamentals section of the Health Physics Society 'Ask the Experts' web feature (<http://hps.org/>), 2003 - 2004
- President-Elect of the American Academy of Health Physics, 2005
- President of the American Academy of Health Physics, 2006