

Walter McNeil
Assistant Professor

Professional Affiliations

- President American Nuclear Society, student chapter - 2003; Treasurer and Secretary - 2002
Secretary American Society of Manufacturing Engineers, student chapter – 2003
President Graduate Nuclear Or Mechanical Engineering Students (GNOMES) 2008

Awards

- “R&D 100 Award”: R&D Magazine's top 100 technologically significant inventions of the year, for development of the Lithium Foil Proportional Gas Neutron Detector - 2014
- “R&D 100 Award”: R&D Magazine, Micro-structured Semiconductor Detector - 2009
- “R&D 100 Award”: R&D Magazine, Insulated Frisch Collar CdZnTe detector. - 2005
- DAWIA Level I Certification – Systems Planning, Research, Development and Engineering, SPRDE
- Award for “Extraordinary Leadership & Service” presented by the Department head of Mechanical & Nuclear Engineering. - Fall 2004
- Best Presentation, Rad. Shielding section, American Nuclear Society student conference, Berkeley - 2003
- Off-shore survival training including underwater helicopter ditching. - 2001
- Private pilot's license with high performance and complex ratings. - 1998

Patents

- No. 8519350: *“Gas-filled neutron detectors having improved detection efficiency”*
- No. 7855372: *“Non-streaming high-efficiency perforated semiconductor neutron detectors, methods of making same and measuring wand and detector modules utilizing same”*

Publications

Refereed Journals

- “Enhanced Variant Designs and Characteristics of the Microstructured Solid-State Neutron Detectors”, S.L. Bellinger, R.G. Fronk, W.J. McNeil, T.J. Sobering, D.S. McGregor, Nuclear Instruments and Methods, A (2010), in press.
- "Improved Fabrication Technique for Microstructured Solid-State Neutron Detectors" S.L. Bellinger, **W.J. McNeil**, D.S. McGregor, Materials Research Society Symposium Proceedings, vol. 1164, (2010), pp. 57-65. - Invited Talk
- “Investigation of CdZnTe and LiNbO₃ as Electro-Optic Neutron Detectors”, K. A Nelson, N. Edwards, M. J. Harrison, Kargar, W. J. McNeil, R. A. Rojeski, D. S. McGregor, Nuclear Instruments and Methods, A 620, n 2-3, (2009) pp. 363-367.
- "Microstructured Semiconductor Neutron Detectors", D.S. McGregor, W.J. McNeil, S.L. Bellinger, T.C. Unruh, and J.K. Shultis, Nuclear Instruments and Methods, A 608, (2009) pp. 125-131.
- "1-D Array of Perforated Diode Neutron Detectors", W.J. McNeil, S.L. Bellinger, T.C. Unruh, C.M. Henderson, P. Ugorowski, B. Morris-Lee, R.D. Taylor, D.S. McGregor, Nuclear Instruments and Methods, Section A, vol. 604 (2009) pp. 127-129.
- "High Efficiency Perforated Diode Neutron Detectors", W.J. McNeil, S.L. Bellinger, T.C. Unruh, and D.S. McGregor, Applied Physics Letters, (2008) in review.
- “Perforated Diode Neutron Detector Modules Fabricated from High-Purity Silicon”, D.S. McGregor, S.L. Bellinger, D. Bruno, W.L. Dunn, W.J. McNeil, E. Patterson, B.B. Rice, J.K. Shultis, T. Unruh, Radiation Physics and Chemistry, Workshop on Use of Monte Carlo Techniques for Design and Analysis of Radiation Detectors, vol. 78, n 10, Oct. (2009). pp. 874-881.
- "Characteristics of 3D Micro-Structured Semiconductor High Efficiency Neutron Detectors", S.L. Bellinger, W.J. McNeil, T.C. Unruh, and D.S. McGregor, IEEE Transactions on Nuclear Science, vol. 56, n 3, (2009) pp. 742-746.
- "Design and Operation of a 2D Thin Film Semiconductor Neutron Detector Array for Use as a Beamport Monitor"

- T.C. Unruh, S.L. Bellinger, D.E. Huddleston, W.J. McNeil, E. Patterson, T. Sobering, R.D. Taylor, D.S. McGregor, Nuclear Instruments and Methods, A 604, (2008) pp. 150-153.
- "Thermal Neutron Detection with Pyrolytic Boron Nitride", D.S. McGregor, T.C. Unruh, and W.J. McNeil, Nuclear Instruments and Methods section A , 591 (2008) pp. 530-533.
- "A Hybrid Method for Coupled Neutron-Ion Transport Calculations for ¹⁰B and ⁶LiF Coated and Perforated Detector Efficiencies", C.J. Solomon, J.K. Shultis, W.J. McNeil, T.C. Unruh, B.B. Rice, and D.S. McGregor, Nuclear Instruments and Methods A, A580 (2007) pp. 326-330.
- "Angular Response of a W-Collimated Room-Temperature-Operated CdZnTe Frisch Collar Spectrometer", A. Kargar,
- A.M. Jones, W.J. McNeil, M.J. Harrison, and D.S. McGregor, Nuclear Instruments and Methods, A562 (2006) pp. 262-271.
- "Performance Characteristics of Frisch-Grid CdZnTe Detectors", A.E. Bolotnikov, G.S. Camarda, G.A. Carini, M. Fiederle, D.S. McGregor, W. McNeil, G.W. Wright, and R. B. James, IEEE Transactions Nuclear Science, vol. NS-53 (2006) pp. 607-614.
- "Carbon-Coating of Fused Silica Ampoules", M. J. Harrison, A.P. Graebner, W.J. McNeil, and D.S. McGregor, Journal of Crystal Growth, 290 (2006) pp. 597-601.
- "CdZnTe Frisch Ring Detectors for Gamma Ray Spectroscopy", A. Kargar, A.M. Jones, W.J. McNeil, M.J. Harrison and D.S. McGregor, Nuclear Instruments and Methods, A558 (2006) pp. 497-503.
- "New Results from Performance Studies of Frisch-Grid CdZnTe Detectors", A.E. Bolotnikov, G. S. Camarda, G. A. Carini, G. W. Wright, R. B. James, D. S. McGregor, and W. McNeil, Proceedings from SPIE, Vol. 5540 (2004) pp. 33-45.
- "Single Charge Carrier Type Sensing with an Insulated Frisch Ring CdZnTe Semiconductor Radiation Detector", W.
- J. McNeil, D. S. McGregor, A. E. Bolotnikov, G. W. Wright, R.B. James, Applied Physics Letters, 84 (2004) pp. 1988-1990.

Conference Proceedings

- "Variant Designs and Characteristics of Improved Microstructured Solid-State Neutron Detectors", S.L. Bellinger, W.J. McNeil, D.S. McGregor, IEEE Nuclear Science Symposium Conference Record, (2009) pp. 986-989.
- "1-D Array of Micro-Structured Neutron Detectors", W.J. McNeil, S.L. Bellinger, T.C. Unruh, C.M. Henderson, P.B. Ugorowski, W.L. Dunn, R.D. Taylor, B.J. Blalock, C.L. Britton Jr., D.S. McGregor, Conference Record IEEE Nuclear Science Symposium, Orlando, FL, Oct. 25 – Oct. 31, (2009), pp. 2008-2011.
- "Patara II: A 64-Channel Solid-State Neutron Detector Readout System with Integrated Analog and Digital Processing for the SNS", A.G. Antonacci, J.L. Britton, S.C. Bunch, M.N. Ericson, B.J. Blalock, R. Chun, R. Greenwell, D.S. McGregor, L. Crow, L. Clonts, T. Sobering, R. Taylor, W. McNeil, S. Bellinger, C.L. Britton Jr., Conference Record IEEE Nuclear Science Symposium, Orlando, FL, Oct. 25 – Oct. 31, (2009), pp. 68-74.
- "Micro-Structured High-Efficiency Semiconductor Neutron Detectors", D.S. McGregor, S.L. Bellinger, W.J. McNeil, T.C. Unruh, Conference Record IEEE Nuclear Science Symposium, Dresden, Germany, Oct.19 - Oct. 25, 2008.
- "Characterization of the High-Efficiency Neutron Detector Array (HENDA)", P. Ugorowski, S. Bellinger, L. Crow, C. Henderson, W.L. Dunn, W.J. McNeil, R.D. Taylor, D.S. McGregor, Conference Record IEEE Nuclear Science Symposium, Dresden, Germany, Oct.19 - Oct. 25, 2008.
- "Preliminary Tests of a High Efficiency 1-D Silicon Pixel Array for Small Angle Neutron Scattering", W.J. McNeil, S.L. Bellinger, B.J. Blalock, C.L. Britton Jr., J.L. Britton, S.C. Bunch, W.L. Dunn, C.M. Henderson, T.J. Sobering, R.D. Taylor, T.C. Unruh, D. S. McGregor, IEEE Nuclear Science Symposium, Waikiki, Hawaii, Oct. 28-Nov. 3, 2007.
- "Angular Response of Perforated Silicon Diode High Efficiency Neutron Detectors", S.L. Bellinger, W.J. McNeil, T.C. Unruh, D.S. McGregor, IEEE Nuclear Science Symposium, Waikiki, Hawaii, Oct. 28-Nov. 3, 2007.
- "Wireless Neutron and Gamma Ray Detector Modules for Dosimetry and Remote Monitoring", D.S. McGregor, S.L. Bellinger, D. Bruno, S. Cowley, W.L. Dunn, M. Elazegui, W.J. McNeil, H. Oyenan, E. Patterson, J.K. Shultis, G. Singh, C.J. Solomon, A. Kargar, T. Unruh, IEEE Nuclear Science Symposium, Waikiki, Hawaii, Oct. 28-Nov. 3, 2007.

- "Perforated Semiconductor Neutron Detectors for Battery Operated Portable Modules", D.S. McGregor, S.L. Bellinger, D. Bruno, W.J. McNeil, E. Patterson, J.K. Shultis, C.J. Solomon, T. Unruh, Proceedings SPIE, 6706 (2007) pp. 0N1-0N12.
- "Perforated Semiconductor Neutron Detector Modules for Detection of Spontaneous Fission Neutrons", D.S. McGregor, S.L. Bellinger, D. Bruno, S. Cowley, M. Elazegui, W.J. McNeil, E. Patterson, B.B. Rice, C.J. Solomon, J.K. Shultis, and T. Unruh, IEEE Conference on Technologies for Homeland Security, Woburn, MA, May 16-17, 2007.
- "Perforated Semiconductor Neutron Detector Modules", D.S. McGregor, S. Bellinger, D. Bruno, W.J. McNeil, E. Patterson, B.B. Rice, Proc. of 32nd Annual GOMACTech Conf., Lake Buena Vista, FL, March 19-22, 2007.
- "Detector Development in the Kansas State University SMART Laboratory", D.S. McGregor, A. Kargar, W.J. McNeil, M.F. Ohmes, B. Rice, J.K. Shultis, T. Unruh, ANS Topical Meeting, Albuquerque, NM, Nov. 12-16, 2006.
- "Development of Perforated Si Diodes for Neutron Detection", W.J. McNeil, S. Bellinger, T. Unruh, E. Patterson, A. Egley, D. Bruno, M. Elazegui, A. Streit, D.S. McGregor, IEEE Nuclear Science Symposium, San Diego, CA, Oct. 29- Nov. 3, 2006.
- "Perforated Semiconductor Diodes for High Efficiency Solid State Neutron Detectors", D.S. McGregor, S. Bellinger, D. Bruno, S. Cowley, W. Dunn, A. Egley, Q. Jahan, W.J. McNeil, E. Patterson, M. Elazegui, B.B. Rice, J.K. Shultis, C.J. Solomon, A. Streit, T. Unruh, presentation recorded in the conference record of the Workshop on Use of Monte Carlo Techniques for Design and Analysis of Radiation Detectors, Coimbra, Portugal, September 15-17, 2006.
- "HENDA and Patara: A solid state neutron detector and a prototype readout chip for the SNS", S. Bunch, J.L. Britton, B. J. Blalock, C. L. Britton, D.S. McGregor, R. Taylor, T. Sobering, D. Huddleston, W. McNeil, T. Unruh, B.B. Rice, S. Bellinger, B. Cooper, L. Crow, 2006. Vth International Meeting on Front End Electronics for High Energy, Nuclear, Medical and Space Applications, 17-20 May 2006, Perugia, Italy.
- "Design and Performance of a Portable Neutron Dosimeter", W.L. Dunn, Q.M. Jahan, D.S. McGregor, W. McNeil, E.L. Patterson, B. Rice, J.K. Shultis, C.J. Solomon, Proceedings 2nd Workshop on European Collaboration for Higher Education in Nuclear Engineering and Radiological Protection, 12-15 March, 2006, Valencia, Spain (in press).
- "Performance Characteristics of Frisch-Grid CdZnTe Detectors", A.E. Bolotnikov, G.S. Camarda, G.A. Carini, M. Fiederle, D.S. McGregor, W. McNeil, G.W. Wright, and R. B. James, IEEE Nuclear Science Symposium, Rome, Italy, Oct. 18-22, 2004.