JAMES E. BEVINS

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EDUCATION

Ph.D.	**University of California, Berkeley** Nuclear Engineering, with a minor in Nuclear Policy	2017
M.S.	**Air Force Institute of Technology** Nuclear Engineering	2011
B.S.	**University of Tennessee** Nuclear Engineering	2009

PROFESSIONAL EXPERIENCE

Air Force Institute of Technology Aug. 2017 - Present
Assistant Professor of Nuclear Engineering *WPAFB, OH*

- Researching detector development, nuclear weapon effects, and neutron spectroscopy with an emphasis on optimized design of systems
- Applications in nuclear security and nonproliferation, shielding, medical isotope production, and technical nuclear forensics

University of California, Berkeley Aug. 2014 - Aug. 2017
Graduate Student/National Science Foundation Fellow *Berkeley, CA*

- Researched "Targeted Neutron Spectrum Modification for National Security Applications": Developed an energy tuning assembly (ETA) concept that was designed to modify the NIF neutron energy spectrum to a more "weapon-like" neutron spectrum
- Developed a novel metaheuristic optimization algorithm, Gnowee, that was implemented in a new nuclear design software, Coeus
- Performed neutron spectroscopy experiments at the 88-Inch Cyclotron to characterize the ETA

Sandia National Laboratory Mar. 2013 - Feb. 2014
Weapon Intern *Albuquerque, NM*

- Comprehensive technical, historical, and nuclear policy curricula designed to develop next generation of nuclear weapons experts and leaders through multi-agency interaction in coursework, site visits, and research projects
- Research Project Titled: Criticality Analysis of US Pits under Accident Scenarios
- Research Project Titled: An Automated Solid Model and MCNP Materials Import Scheme

Air Force Nuclear Weapons Center (AFNWC) Apr. 2011 - Aug. 2014
Nuclear Engineer/Physicist *Kirtland AFB, NM*

- Organized, conducted, and led multi-agency AFNWC efforts to review, update, improve, and develop nuclear hardness models and mission planning guidance used for nuclear weapons delivery
- Planned, directed, performed, and reviewed nuclear weapon effects and survivability assessments in support of AF, DoD, and DOE acquisition efforts through analysis, simulation, and test for systems to include the Long Rang Stand-off (LRSO) missile, B61-12 nuclear bomb, Ground Based Strategic Deterrent (GBSD), and others
- Designed, developed, reviewed, and implemented new analysis software and capabilities to address gaps and/or improve fidelity in AF efforts to model different operational concepts and threats

SELECTED PUBLICATIONS (* DENOTES STUDENT)

M. C. Recker*, E. J. Cazalas, J. W. McClory, and **J. E. Bevins**, "Comparison of SiPM and PMT Performance Using a Cs2LiYCl6:Ce3+(CLYC) Scintillator with Two Optical Windows," *IEEE Transactions on Nuclear Science*, vol. 66, no. 8, pp. 1959–1965, 2019.

Bethany L. Goldblum, Andrew W. Reddie, Thomas C. Hickey, **James E. Bevins**, et al., "The nuclear network: Multiplex network analysis for interconnected systems," *Applied Network Science*, vol. 4, no. 36, 2019.

J. E. Bevins, Z. Sweger*, N. Munshi*, et al., "Performance evaluation of an energy tuning assembly for neutron spectral shaping," Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, vol. 923, pp. 79–87, 2019.

R. Olesen*, B. E. O'Day, D. E. Holland, L. W. Burggraf, and **J. E. Bevins**, "Characterization of Novel Rotating Scatter Mask Designs for Gamma Direction Identification," *Nuclear Instrumentation and Methods in Physics Research Section A*, 2018. (In Press, available online)

James E. Bevins, Elie Katzenson, et al., "A Framework for Assessing Alternate Proliferation Pathways in the Age of Non-State Actors," *Nuclear Posture Review*, vol. 25, pp. 87-110, 2018.

D. E. Holland, **J. E. Bevins**, et al., "Rotating scatter mask optimization for gamma source direction identification," *Nuclear Instruments and Methods Phys. Res. A*, vol. 901, pp. 104–111, 2018.

K. P. Harrig, B. L. Goldblum, et al., "Neutron Spectroscopy for Pulsed Beams with Frame Overlap using a Double Time-of-Flight Technique," *Nuclear Instrumentation and Methods in Physics Research Section A*, vol. 877, pp. 359–366, 2018.

J. E. Bevins and R. S. Slaybaugh, "Gnowee: A Hybrid Metaheuristic Optimization Algorithm for Constrained, Black Box, Combinatorial Mixed-Integer Design," *Nuclear Technologies*, 2018.

James E. Bevins, Rebecca Krentz-Wee, et. al., "Alternate Nuclear Proliferation Pathways in the Age of Non-State Actors," in Proceedings of the American Nuclear Society Winter Meeting and Technology Expo, Washington, D.C., October 2017. (invited)

N. Benczer-Koller, G. J. Kumbartzki, et al., "Magnetic moment and lifetime measurements of Coulomb-excited states in 106Cd," *Physical Review C*, Vol. 94, 2016.

G. J. Kumbartzki, N. Benczer-Koller, et al., "Z = 50 core stability in 110Sn from magnetic-moment and lifetime measurements," *Physical Review C*, Vol. 93, 2016.

J. Bevins, K. Dahl, et al., "Bulk Radiation Damage Effects of a p-type B5C:Hx Thin Film on n-Si Heterojunction Diode," *Journal of Radiation Effects, Research and Engineering*, Vol. 30, No1, 2012.

SELECTED AWARDS

Tau Beta Pi Thesis Advisor Award	2019
Air Force Technical Applications Center Endowed Term Chair	2018
AFIT Company Grade Officer of the Quarter	2018
National Science Foundation Graduate Fellowship	2014-2017
Air Force Meritorious Service Medal	2014
Squadron Officer School Distinguished Graduate, Outstanding Contributor, Top 1%	2014
USAF Modeling & Simulation Cross-Functional Team Award	2012
AFMC Analytic Team of the Year Award	2012
AFNWC Nuclear Capabilities Directorate Company Grade Officer of the Year	2012
Exceptional Performer, Air Space Basic Course	2009
Army Commendation Medal	2004
Honor Graduate, Explosive Ordnance Disposal School	2003