

JAMES E. BEVINS

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Department of Applied Physics ◊ Air Force Institute of Technology

2950 Hobson Way ◊ Wright Patterson AFB, OH 45433

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 <i>Assistant Professor of Nuclear Engineering</i>	Aug. 2017 - Present <i>WPAFB, OH</i>
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- 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 <i>Graduate Student/National Science Foundation Fellow</i>	Aug. 2014 - Aug. 2017 <i>Berkeley, CA</i>
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- 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 <i>Weapon Intern</i>	Mar. 2013 - Feb. 2014 <i>Albuquerque, NM</i>
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- 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) <i>Nuclear Engineer/Physicist</i>	Apr. 2011 - Aug. 2014 <i>Kirtland AFB, NM</i>
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- 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

- James E. Bevins**, Elie Katzenson, James Kendrick, Rebecca Krentz-Wee, Sarah Laderman, Yubing Tian, “A Framework for Assessing Alternate Proliferation Pathways in the Age of Non-State Actors,” *Nuclear Posture Review*. (Accepted September 2017)
- James E. Bevins**, Bethany L. Goldblum, Elie Katzenson, James Kendrick, Rebecca Krentz-Wee, Sarah Laderman, Yubing Tian, “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)
- K. P. Harrig, B. L. Goldblum, J. A. Brown, D. L. Bleuel, L. A. Bernstein, **J. Bevins**, M. Harasty, T. A. Laplace, E. F. Matthews, “Neutron Spectroscopy for Pulsed Beams with Frame Overlap using a Double Time-of-Flight Technique,” *Nuclear Instrumentation and Methods in Physics Research Section A*. (Accepted September 2017)
- James Bevins**, Youdong Zhang, and Rachel Slaybaugh. “Coeus.” Software. (released 2017) <https://github.com/SlaybaughLab/Coeus>
- James Bevins**, and Rachel Slaybaugh. “Gnowee.” Software. (released 2017) <https://github.com/SlaybaughLab/Gnowee>
- N. Benczer-Koller, G. J. Kumbartzki, et al., “Magnetic moment and lifetime measurements of Coulomb-excited states in ^{106}Cd ,” *Physical Review C*, Vol. 94, 2016.
- G. J. Kumbartzki, N. Benczer-Koller, et al., “ $Z = 50$ core stability in ^{110}Sn from magnetic-moment and lifetime measurements,” *Physical Review C*, Vol. 93, 2016.
- J. Bevins**, R. Slaybaugh, L. Bernstein, E. Henry, W. Dunlop, “Targeted Modification of Neutron Energy Spectra for National Security Applications,” Proceedings of the 2016 Hardened Electronics And Radiation Technology Technical Interchange Meeting in Monterey, CA, April 2016.
- J. Bevins**, K. Dahl, J. McClory, J. Petrosky, A. Caruso, and S. Karki, “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.
- James Bevins**, John McClory, James Petrosky, and Anthony Caruso, “Theoretical Performance of a p-type B5C:Hx Thin Film on n-Si Neutron Detector”, Transactions of the American Nuclear Society, vol. 103, pp. 212-216, November 2010.
- J. Bevins**, J. P. Hayward, J. Mihalcz, “Monte Carlo simulations of passive time correlation measurements for monitoring HEU in large storage arrays,” Proceedings of 50th INMM Annual Meeting, Tucson, AZ, July 2009.

SELECTED AWARDS

National Science Foundation Graduate Fellowship	2014-2017
Best Paper, NNSA University and Industry Technical Interchange	2016
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
Nuclear Capabilities Directorate Company Grade Officer of the Year	2012
IEEE Nuclear and Plasma Sciences Society Graduate Scholar Award	2011
Exceptional Performer, Air Space Basic Course	2009
Chancellors Academic Achievement Award	2007
Army Commendation Medal	2004
Honor Graduate, Explosive Ordnance Disposal School	2003