Undergraduate Research in Radiological Health Engineering

Example Year (2016-17) with NNSA Consortium for Verification Technology Funding

Professor Kim Kearfott, Jonathan Miller (UM NERS Undergraduate)

Department of Nuclear Engineering and Radiological Sciences, University of Michigan, Ann Arbor

A Prolific Undergraduate Team

Health Physics Society Abstracts 2016

A-1 Kearfott, K. J., "Elda Emma Anderson: Who Was He?", Health Phys 111(S1): S88, 2016.

A-2 Kearfott, K. J., LaGarry, H. E., "Seventeen Seventy and Eighteen Seventy Seven: Numbers and Intercultural Radiation Risk Communication", Health Phys 111(S1): S25, 2016.

A-3 *Cao, S., Frank, S., Lynch, R. A., Rucinski, B. D., Sulieman, N. A., Kuznetsov, D., Liu, K.*, Kearfott, K. J., "Indoor Temporal Variations in Background Gamma Ray Spectrum Determined with an 11 cm x 40 cm x 5.5 cm NaI(Tl) Detector", Health Phys 111(S1): S99, 2016.

A-4 *Sulieman, N. A., Seow, C.Y., Cao, S., Frank, S., Boria, A. J., Calma, J. A., Kuznetsov, D., Lynch, R. A., Rucinski, B. D.*, Kearfott, K. J., "Response Characterization of 11 cm x 42.5 cm x 5.5 cm NaI(Tl) Detectors", Health Phys 111(S1): S32-S33, 2016.

A-5 *Lynch, R. A., Frank, S., Jacobs, M., Rucinski, B. D.*, Kearfott, K. J., "Collection, Management, Analysis and Dissemination of Environmental Radiation Monitoring Data for a Public Outreach Project", Health Phys 111(S1): S114, 2016.

A-6 *Guerrido, L., Cao, S., Leak, C.O., Seow, C. Y., Pacheck, E. P., Son, W. K.*, Kearfott, K. J., "Generic Dose Assessment for an Incidental Radiological Contamination of a Reservoir-Based Urban Water Supply", Health Phys 111(S1): S113, 2016.

A-7 West, G. W., Kearfott, K. J., *Seow, C. Y.*, "Preliminary Investigation of the Fading Properties of Several Optically Stimulated Luminescent Materials", Health Phys 111(S1): S70, 2016.

A-8 *Frank, S.*, Kearfott, K. J., "Design of an Affordable Modular Optically Stimulated Luminescence Dosimetry System for the Investigation of New Dosimetric Materials", Health Phys 111(S1): S69, 2016.

A-9 *Boria, A. J., Rucinski, B. D., Dawson, A. S., Seow, C. Y., Abraham, S. A.*, Miklos, J. A., Kearfott, K. J., "Cs-137 Dosimeter Irradiation Facilities: Calibration Frequency, Precision, and Accuracy", Health Phys 111(S1): S112, 2016.

A-10 *Abraham, S. A., Frank, S., Rucinski, B. D., Dawson, A. S., Liu, K., Kuznetsov, D.*, Kearfott, K. J., "Design of an Affordable and Efficient Optically Stimulated Luminescent (OSL) Annealer", Health Phys 111(S1): S69, 2016.

Full-Length Archival Peer-Reviewed Journal Articles (2016-2017 selected from 16)

B-1 *Abraham, S. A.*, Kearfott, K. J., *Jawad, A. H., Boria, A. J., Buth, T. J., Dawson, A. S., Eng, S. C., Frank, S. J., Green, C. A., Jacobs, M. L., Liu, K.*, Miklos, J. A., *Nguyen, H.*, Rafique, M., *Rucinski, B. D., Smith, T.*, Tan, Y., "Design of Interrogation Protocols for Radiation Dose Measurements using Optically Stimulated Luminescent Dosimeters", Health Physics 112(3):237-245, 2017.

B-2 *Boria, A. J., Rucinski, B. D., Abraham, S. A., Dawson, A. S., Jawad, A. H.*, Miklos, J. A., Kearfott, K. J., "Cs-137 Dosimeter Irradiation Facilities: Calibration Frequency, Precision, and Accuracy", Health Physics 112(4):357-363, 2017.

B-3 *West, G. W.*, Kearfott, K. J., *Seow, C. Y.*, "Investigation of Optically Stimulated Luminescence and Signal Fading Properties of Several Materials", Health Physics, 112(6):560-577, 2017.

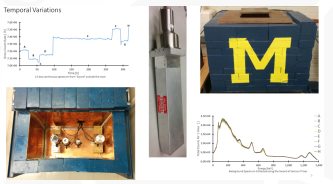
B-4 *Abraham, S. A., Frank, S. J.*, Kearfott, K. J., "An Efficient, Affordable Optically Stimulated Luminescent (OSL) Annealer", Health Physics 113(1):2-12, 2017.

Health Physics Society Meeting 2016

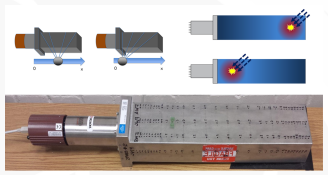
A-1 Prominent with 1 invited and 13 regular platform presentations (13 undergraduate co-authors)

A-2 Oglala Lakota College outreach

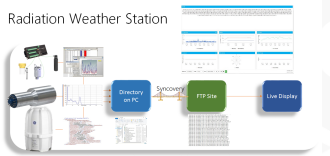
A-3 Background radiation measurements



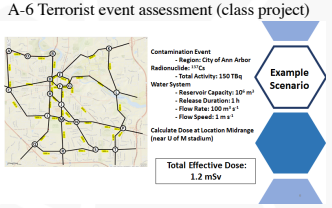
A-4 Large NaI characterization and usage



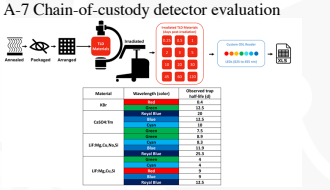
A-5 Public radiation measurements and communications



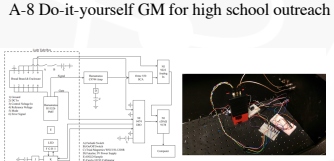
A-6 Terrorist event assessment (class project)



A-7 Chain-of-custody detector evaluation

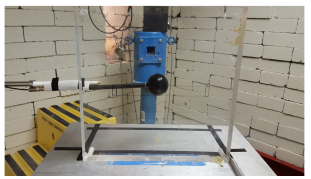


A-8 Do-it-yourself GM for high school outreach

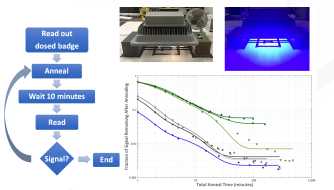


A-9 Dosimeter facility evaluations

Cs-137 Calibration Source



A-10 Dosimeter annealer design



Journal Articles (selected from 16)

B-1

B-2

B-3

B-4

CVT-Impacted Undergrads (2014-2017)

Sara A. Abraham, Andrew J. Boria, Alan Burggren, Tobias Buth, Sana Cao, Marco Carmona, Julia Calma, Jordan Cano, Marco Carmona, Long Kiu Chung, Alex Dawson, Issa El-amir, Sheldon C. Eng, Samuel J. Frank, Bhavin Gandhi, Robert Golduber, Lauren Green, Lauren Guerrido, Mitchell Jacobs, Noah Kleedtke, Daniel Kuznetsov, Logan Latosz, M. Liao, Kevin Liu, Rebecca Lynch, Jasmine Mapes, Loren Mata, Jonathan Miller, Gretchen Mitschelen, Marc Monahan, Weronika Myslak, Chris Nguyen, Hien Nguyen, Jordan Noey, Blake Rucinski, Christopher Rush, Kai Schiefer, James Seekamp, Mena Shenoud, Arshnoor Singh, Travis Smith, Noor Sulieman, David Trimas, Patrisse Vasek, Archan Vyas, Chun Yin Wong, Jeffrey Xiao, Fangbo Yuan

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