NICOLE E. MARTINEZ

Professor
Department of Environmental Engineering and Earth Sciences
Clemson University
Clemson, SC 29634
nmarti3@clemson.edu

EDUCATION

- Ph.D., Colorado State University, 2014, Radiological Health Sciences
  Dissertation: Selected techniques in radioecology: model development and comparison for internal dosimetry of rainbow trout (Oncorhynchus mykiss) and feasibility assessment of reflectance spectroscopy use as a tool in phytoremediation
- M.S., Colorado State University, 2011, Radiological Health Sciences
  Thesis: Occupational radiation dose to persons involved in veterinary positron emission tomography
- B.S., Texas A&M University, 2004, Applied Mathematical Sciences

PROFESSIONAL EXPERIENCE

- *Clemson University, 2025-present, Professor, 2020-2025, Associate Professor and 2014-2020, Assistant Professor of Environmental Engineering and Earth Sciences.* Contribute to a unique departmental program designed to address broad environmental issues associated with anthropogenic and natural radioactivity through teaching classes and conducting research on the behavior and effects of radiological contaminants in the environment.
- *Oak Ridge National Laboratory, 2019-, Joint Faculty Appointee, Center for Radiation Protection Knowledge*. Provide technical support for the development and reporting of new radiation dose and risk models and radiation protection guidelines for various sponsoring federal agencies.
- *Risk Assessment Corporation, 2013-2014, Independent Consultant.* Assisted with environmental risk assessment and dose reconstruction projects.
- *Savannah River Nuclear Solutions, 2011-2013, Biological Science Intern.* Assisted with ongoing research and conducted independent research on a project investigating plant accumulation and uptake of toxic materials at Savannah River National Laboratory.
- *General Physics Corporation, 2008-2010, Performance Specialist*. Designed and implemented power plant performance improvement programs using GP technologies and practices.
- *United States Navy, 2007-2008, Radiation Health Officer, Naval Medical Center Portsmouth.* Managed personnel (10 military and civilian), equipment, and administrative matters for the Radiation Health Division at Naval Medical Center Portsmouth.
- *United States Navy, 2007, Interim Training Director, Naval Weapons Station Charleston*. Facilitated the use of training packages for all drills and exercises conducted on NWS to ensure safety and command approval.
- *United States Navy, 2005-2007, Nuclear Power Instructor, Naval Nuclear Power Training Command*. Trained over 350 enlisted students in the fundamentals of the design, operation, and maintenance of naval nuclear propulsion plants.

PROFESSIONAL CERTIFICATION

- Certified Health Physicist, American Board of Health Physics (2015-Present)

PROFESSIONAL SOCIETY MEMBERSHIPS

- Member, Society for Radiological Protection (2024-Present)
- Member, International Union of Radioecology (2014-2019, 2023-Present)
- Member, Association of Environmental Engineering and Science Professors (2015-Present)
- Member, Society of Environmental Toxicology and Chemistry (2016-Present)
- Former Member, Health Physics Society (2010-2023)
- Former Member, American Nuclear Society (2014-2020)

HONORS AND AWARDS

- Appreciation Award (Dec 2023), Secretary of Energy, US Department of Energy
- Murray Stokley Award for Excellence in Teaching (2020), Clemson University College of Engineering, Computing, and Applied Sciences
- First Place and People's Choice Award, Science as Art (Spring 2020), Clemson University College of Engineering, Computing and Applied Sciences
- Elda E. Anderson Award (2019), Health Physics Society
- Bo Lindell Medal (2018), inaugural recipient, awarded by the International Commission on Radiological Protection for the promotion of radiological protection
- Young Investigator's Award (2014), International Conference on Radioecology and Environmental Radioactivity, International Union of Radioecology

PUBLICATIONS

Textbooks

2023

Quantitative Environmental Risk Analysis for Human Health, 2nd Edition

R.A. Fjeld, T.A. DeVol, **N.E. Martinez**
John Wiley & Sons, Inc.: Hoboken, New Jersey
ISBN: 978-1-119-67532-7; 474 pages
Publication date: August 2023 (E-book) October 2023 (hardcover)

Instructor Aid and Solutions Manual for *Quantitative Environmental Risk Analysis for Human Health*, 2nd Edition

R.A. Fjeld, T.A. DeVol, **N.E. Martinez**
John Wiley & Sons, Inc.: Hoboken, New Jersey
243 pages
Publication date: October 2023 (electronic; instructors only)

Journal Publications (**student author*)

2025

Comparison of measurement techniques and sorption of radium-226 in low and high salinity aqueous samples

S.E. Donaher, J Wang*, **N.E. Martinez**, B.A. Powell
Applied Radiation & Isotopes 222:111851
https://doi.org/10.1016/j.apradiso.2025.111851

Ionizing radiation potential in life cycle impact assessment: broadening the assessment through inclusion of radioactive decay products

B.A. Wattier*, L.C. Shuller-Nickles, M. Carbajales-Dale, **N.E. Martinez**
The International Journal of Life Cycle Assessment 30:1844-1859
https://doi.org/10.1007/s11367-025-02461-8

Archival records housed at USTUR support radium dial worker dosimetry

N.E. Martinez, D.W. Jokisch, M. Mumma, A. Golden, S. Howard, S.Y. Tolmachev, M. Avtandilashvili, G. Tabatadze, R.W. Leggett, C. Samuels, L.T. Dauer, J.D. Boice, Jr
Journal of Radiological Protection 45:021514
https://doi.org/10.1088/1361-6498/ad8bcf

Oxidative stress and filtration responses in Atlantic ribbed mussels (*Geukensia demissa*) exposed to radium-226

S.E. Donaher*, P. Van den Hurk, B.A. Powell, **N.E. Martinez**
Environmental Toxicology & Chemistry 44:112-123
https://doi.org/10.1093/etojnl/vgae005

2024

Distribution of plutonium and radium in the human heart

S.Y. Tolmachev, F.T. Martinez, J.E. Linson, J.D. Brockman, E.T. Thomas, M. Avtandilashvili, G. Tabatadze, R.W. Leggett, C. Samuels, **N.E. Martinez**, D.W. Jokisch, J.D. Boice, Jr, L.T. Dauer
Journal of Radiological Protection 44:041515
https://doi.org/10.1088/1361-6498/ad9ebb

Perspectives of the role of ICRP and the System of Protection in meeting the United Nations Sustainable Development Goals

P.A. Bryant, C. Clement, C.L. Chapple, **N. Martinez**, M. Lips, C. Dowds
Journal of Radiological Protection 44:031519
https://doi.org/10.1088/1361-6498/ad7bc3

Review of ethical values across the ICRP system of radiological protection

N.E. Martinez and F. Zölzer
Journal of Radiological Protection 44:031002
https://doi.org/10.1088/1361-6498/ad61f3

Site- and species-specific metal concentrations, mobility, and bioavailability in sediment, flora, and fauna of a southeastern United States salt marsh

S.E. Donaher*, S.L. Estes, R.P. Dunn, A.K. Gonzales*, B.A. Powell, **N.E. Martinez**
Science of the Total Environment 922:171262
https://doi.org/10.1016/j.scitotenv.2024.171262

2023

Exposure of *Lemna minor* (common duckweed) to mixtures of uranium and perfluorooctanoic acid (PFOA)

A.K. Gonzales*, S.E. Donaher*, B.D. Wattier*, **N.E. Martinez**
Environmental Toxicology & Chemistry 42:2412-2421
https://doi.org/10.1002/etc.5720

Use of life cycle assessment (LCA) to advance optimisation of radiological protection and safety

B.D. Wattier*, **N.E. Martinez**, M. Carbajales-Dale, L.C. Shuller-Nickles
Journal of Radiological Protection 43:031514
https://doi.org/10.1088/1361-6498/acf76e

Tissue-specific toxicokinetics of aqueous radium-226 in an estuarine mussel, *Geukensia demissa*

S. Donaher*, R. Dunn, A. Gonzales*, B. Wattier*, B. Powell, **N. Martinez**
Environmental Science & Technology 57:3187-3197 [Correction (units) 57:8457-8459]
https://doi.org/10.1021/acs.est.2c09421

Global transcriptional response of *Escherichia coli* to different low-dose ionizing radiation sources

M. Wintenberg*, Lisa Manglass*, **N.E. Martinez,** M. Blenner
mSystems 8:e00718-22 [February]
https://doi.org/10.1128/msystems.00718-22

The influence of iron and ligand type on plutonium uptake in two strains of hydroponically grown corn (*Zea mays*)

S. Hoelbling Phillips*, S.E. Donaher*, B.A. Powell, N. Tharayil, **N.E. Martinez**
Health Physics 124:95-105
https://doi.org/10.1097/HP.0000000000001638

Flowthrough of Pu-239 and Fe-55 during RNA extraction

L.M. Manglass*, C.M. Vogel*, M. Wintenberg*, M.A. Blenner, **N.E. Martinez**
Journal of Radiological Protection 43:013502
https://doi.org/10.1088/1361-6498/acb15d

Perfluorooctanoic acid uptake in the mustard species *Brassica juncea*

B.D. Wattier*, A.K. Gonzales*, **N.E. Martinez**
Journal of Environmental Quality 52:199-206
https://doi.org/10.1002/jeq2.20431

Comparative uptake, translocation, and plant mediated transport of Tc-99, Cs-133, Np-237, and U-238 in Savannah River Site soil columns for the grass species *Andropogon virginicus*

D. Montgomery*, N. Edayilam*, H. Page*, S.A. Sheriff*, N. Tharayil, B.A. Powell, **N.E. Martinez**
Science of the Total Environment 857:159400
https://doi.org/10.1016/j.scitotenv.2022.159400

2022

17α-Ethynylestradiol induced changes in *Brassica rapa* during the seedling growth Stage

C. Wijewardana, A.K. Gonzales*, C.M. Vogel*, and **N.E. Martinez**
Agrosystems, Geosciences, and Environment 5:e20258
https://doi.org/10.1002/agg2.20258

The Three R's of Reasonableness in Radiological Protection: Relationships, Rationale, and Resources

J.S. Wieder, T. Schneider, and **N.E. Martinez**
Journal of Radiological Protection 42:021513
https://doi.org/10.1088/1361-6498/ac563b

Radium dial workers: back to the future

N.E. Martinez, D.W. Jokisch, L.T. Dauer, K.F. Eckerman, J.D. Brockman, S.Y. Tolmachev, R. Goans, M. Avtandilashvili, M. Mumma, J.D. Boice, Jr., R.W. Leggett
International Journal of Radiation Biology 98:750-768
https://doi.org/10.1080/09553002.2021.1917785

Women in Radiation (WiR) – A perspective for the strengthening of radiation protection

G. Voigt, **N. Martinez**, J. Garnier-Laplace, F. Maher, C. Cousins, G. Hirth, R. Czarwinski, R. Sapoi, K. Suzuki, R. Qiu, M. Belinco, and M. Di Girogio
Journal of Radiological Protection 42:010502
https://doi.org/10.1088/1361-6498/ac2909

2021

Accumulation of radio-iron and plutonium, alone and in combination, in *Pseudomonas putida* grown in liquid cultures

L.M. Manglass*, C. Vogel*, M. Wintenberg*, M. Blenner, and **N. Martinez**
Journal of Radiological Protection 41:1199
https://doi.org/10.1088/1361-6498/ac2f86

Plutonium-239 accumulation in *E. coli* and *P. putida* grown in liquid cultures

L. Manglass*, M. Wintenberg*, M. Blenner, and **N. Martinez**
Health Physics 121:484-493
https://doi.org/10.1097/HP.0000000000001455

Women in Radiation: A Brief Discussion of the Intersectionality of Race and Gender

N.E. Martinez
Journal of Radiological Protection 41:590-596
https://doi.org/10.1088/1361-6498/abfc95

Ethics and values surrounding the radiation protection of animals

N.E. Martinez
Health Physics 121:58-63
https://doi.org/10.1097/HP.0000000000001410

2020

Integration of Ecosystem Science into Radioecology: A Consensus Perspective

O.E. Rhodes, Jr., F. Bréchignac, C. Bradshaw, T.G. Hinton, C. Mothersill, J.A. Arnone III, D.P. Aubrey, L.W. Barnthouse, J.C. Beasley, A. Bonisoli-Alquati, L.R. Boring, A.L. Bryan, K.A. Capps, B. Clement, A. Coleman, C. Condon, F. Coutelot, T. DeVol, G. Dharmarajan, D. Fletcher, W. Flynn, G. Gladfelder, T. Glenn, S. Hendricks, K. Ishida, T. Jannik, L. Kapustka, U. Kautsky, R. Kennamer, W. Kuhne, S. Lance, G. Laptyev, C. Love, L. Manglass, **N. Martinez**, T. Mathews, A. McKee, W. McShea, S. Mihok, G. Mills, B. Parrott, B. Powell, E. Pryakhin, A. Rypstra, D. Scott, J. Seaman, C. Seymour, M. Shkvyria, A. Ward, D. White, M. Wood, and J. Zimmerman
Science of the Total Environment 740:140031
https://doi.org/10.1016/j.scitotenv.2020.140031

Uranium Attenuated by a Wetland 50 years After Release into a Stream

D.I. Kaplan, R. Smith, C. Parker, M. Baker, T. Cabrera, B. Ferguson, K.M. Kemner, M. Laird, C. Logan, J. Lott, L. Manglass, **N. Martinez**, D. Montgomery, J. Seaman, M. Shapiro, and B.A. Powell
ACS Earth and Space Chemistry 4:1360-1366
https://doi.org/10.1021/acsearthspacechem.0c00124

Dissolution and vertical transport of uranium from stable mineral forms by plants as influenced by the co-occurrence of uranium with phosphorus

N. Edayilam*, B. Ferguson*, D. Montgomery*, A. Al Mamun*, **N. Martinez**, B.A. Powell, N. Tharayil
Environmental Science & Technology 54:6602-6609
https://doi.org/10.1021/acs.est.9b06559

A mixed-methods approach for improving radiation safety culture in open-source university laboratories

C.M. Root*, R.R. Sinclair, T.A. DeVol, **N.E. Martinez**
Health Physics 118:427-437
https://doi.org/10.1097/HP.0000000000001147

Dosimetric modeling of ^{99}Tc, ^{137}Cs, ^{237}Np, and ^{238}U in the grass species *Andropogon virginicus*: development and comparison of stylized, voxel, and hybrid phantom geometry

D.A. Montgomery* and **N.E. Martinez**
Journal of Environmental Radioactivity 211:106075
https://doi.org/10.1016/j.jenvrad.2019.106075

2019

Thermal neutron flux characterization and dose modeling of a PuBe source

A.H. Willey*, T.A. DeVol, **N.E. Martinez**
Health Physics 117:669-679
https://doi.org/10.1097/HP.0000000000001110

2018

Women in the Radiation Sciences and the Importance of Building Community

N.E. Martinez
Health Physics 115:547-9
https://doi.org/10.1097/HP.0000000000000916

Presidential Perspectives: Women's Views from the Top

G. Roessler, R. McBurney, K. Pryor, B. Hamrick, N. Kirner, **N.E. Martinez**
Health Physics 115:608-15
https://doi.org/10.1097/HP.0000000000000849

The Uptake and Translocation of ^{99}Tc, ^{133}Cs, ^{237}Np, and ^{238}U Into *Andropogon Virginicus* with Consideration of Plant Life Stage

D.A. Montgomery*, N. Edayilam*, N. Tharayil, B.A. Powell, **N.E. Martinez**
Health Physics 115:550-60
https://doi.org/10.1097/HP.0000000000000848

Reflectance-Based Vegetation Index Assessment of Four Plant Species Exposed to Lithium Chloride

N.E. Martinez, J.L. Sharp, T.E. Johnson, W.W. Kuhne, C.T. Stafford, M.C. Duff
Sensors 18: 2750
https://doi.org/10.3390/s18092750

Phosphorus Stress-Induced Changes in Plant Root Exudation Could Potentially Facilitate Uranium Mobilization from Stable Mineral Forms

N. Edayilam*, D. Montgomery*, B. Ferguson*, A. Maroli*, **N. Martinez**, B. Powell, N. Tharayil
Environmental Science & Technology 52:7652-62
https://doi.org/10.1021/acs.est.7b05836

Preferential Flow Systems Amended with Biogeochemical Components: Imaging of a Two-Dimensional Study

A. Pales*, B. Li, H.M. Clifford, S. Kupis, N. Edayilam*, D. Montgomery*, W-Z. Liang, M. Dogan, N. Tharayil, **N. Martinez**, S. Moysey, B. Powell, C. Darnault
Hydrology and Earth System Sciences 22:2487-2509
https://doi.org/10.5194/hess-22-2487-2018

2017

Ethics, Stakeholders and Low Doses

Smith, G. and **N. Martinez**
Journal of Radiological Protection 37:947-52
https://doi.org/10.1088/1361-6498/aa9600

The influence of citrate and oxalate on Tc(VII), Cs, N(V), and U(VI) sorption to a Savannah River Site soil

D. Montgomery*, K. Barber*, N. Edayilam*, K. Oguijiuba*, S. Young*, T. Biotidara*, A. Gathers*, M. Danjali, N. Tharayil, **N. Martinez**, B. Powell
Journal of Environmental Radioactivity 172:130-42
https://doi.org/10.1016/j.jenvrad.2017.03.017

Contributions from women to the radiation sciences: a brief history

N.E. Martinez
Health Physics 112:376-83
https://doi.org/10.1097/HP.0000000000000646

Review of gender and racial diversity in radiation protection

E. Gillenwalters and **N. Martinez**
Health Physics 112:384-91
https://doi.org/10.1097/HP.0000000000000640

2016

Balancing theory and practicality: engaging non-ethicists in ethical decision-making

Martinez, N.E. and D.E. Wueste
Journal of Radiological Protection 36:832-41
https://doi.org/10.1088/0952-4746/36/4/832

Application of computational models to estimate organ radiation dose in rainbow trout from uptake of molybdenum-99 with comparison to iodine-131

N.E. Martinez, T.E. Johnson, and J.E. Pinder III
Journal of Environmental Radioactivity, 151:468-79
https://doi.org/10.1016/j.jenvrad.2015.05.021

2015

Assessing the use of reflectance spectroscopy in determining CsCl stress in the model species *Arabidopsis thaliana*

N.E. Martinez, J.L. Sharp, W.W. Kuhne, T.E. Johnson, C. Stafford, and M.C. Duff
International Journal of Remote Sensing 36:5587-915
https://doi.org/10.1080/01431161.2015.1110258

2014

Development and comparison of computational models for estimation of absorbed organ radiation dose in rainbow trout (*Oncorhynchus mykiss*) from uptake of iodine-131

N.E. Martinez, J.E. Pinder III, K. Capello, and T.E. Johnson
Journal of Environmental Radioactivity 131:62-71
https://doi.org/10.1016/j.jenvrad.2014.08.001

mRNA Transcript Abundance during Plant Growth and the Influence of Li^+ Exposure

M.C. Duff, W.W. Kuhne, N.V. Halverson, C Chang, E. Kitamura, L. Hawthorn, **N. Martinez**, C. Stafford, C. Milliken, E.F. Caldwell, E. Stieve-Caldwell
Plant Science 229:262-70
https://doi.org/10.1016/j.plantsci.2014.10.004

A Proposed Simple Model for Estimating Occupational Radiation Dose to Staff from Veterinary ^{18}F-FDG PET Procedures

N.E. Martinez, S.L. Kraft, and T.E. Johnson
Health Physics 106:583-91
https://doi.org/10.1097/HP.0000000000000037

The Influence of Lake Trophic Structure on ^{131}I Accumulation and Subsequent Cumulative Radiation Dose to Trout Thyroids

N.E. Martinez, J.E. Pinder III, and T.E. Johnson
Journal of Environmental Radioactivity 131:62-71
https://doi.org/10.1016/j.jenvrad.2013.10.015

2012

The HML's New Voxel Phantoms: Two Human Males, One Human Female, and Two Male Canines

G.H. Kramer, K. Capello, S. Strocchi, B. Bearrs, K. Leung, and **N. Martinez**
Health Physics 103:802-7
https://doi.org/10.1097/HP.0b013e3182602014

Occupational Per-Patient Radiation Dose from a Conservative Protocol for Veterinary ^{18}F-Fluorodeoxyglucose Positron Emission Tomography

N.E. Martinez, S.L. Kraft, D.S. Gibbons, B.K. Arceneaux, J.A. Stewart, K.R. Mama, and T.E. Johnson
Veterinary Radiology & Ultrasound 53: 591-597
https://doi.org/10.1111/j.1740-8261.2012.01958.x

Standards, Reports, and Recommendations

2024

ICRP Publication 155: Specific Absorbed Fractions for Reference Paediatric Individuals

D.W. Jokisch, W.E. Bolch, B.C. Schwarz, **N.E. Martinez**, K.F. Eckerman, K. Kim, K.T. Griffin, W.J. Godwin, C. Lee (authors on behalf of International Commission on Radiological Protection)
Annals of the ICRP 52(4):1-98 [2023 Dec issue; published online 2024 Nov]
https://doi.org/10.1177/01466453231210647

2022

ICRP Publication 153: Radiological Protection for Veterinary Practice

N.E. Martinez, L. Van Bladel, A. Sovik, L. Balogh, J. Benoit, S. Dorling, J. Gambino, M. Natsuhori, R.J. Pentreath, K. Peremans, E. Randall, C. Roy, I. Tanaka, A. Davila (authors on behalf of the International Commission on Radiological Protection)
Annals of the ICRP 51(4):1-95
https://doi.org/10.1177/01466453221142702

DOE Standard: Derived Concentration Technical Standard

C. Corredor, K. Eckerman, D. Favret, D. Jokisch, R. Leggett, **N. Martinez**, C. Samuels, A. Wallo III (SME for DOE)
U.S. Department of Energy, DOE STD-1196-2022
https://www.standards.doe.gov/standards-documents/1100/1196-astd-2022

2021

DOE Standard: Derived Concentration Technical Standard

C. Corredor, K. Eckerman, D. Favret, D. Jokisch, R. Leggett, **N. Martinez**, C. Samuels, A. Wallo III (SME for DOE)
2008 U.S. Department of Energy, DOE STD-1196-2021 [Superseded by DOE-STD-1196-2022]
https://www.standards.doe.gov/standards-documents/1100/1196-astd-2021

2020

Quality Assurance Plan for Federal Guidance Report 16

N. Martinez, C. Easterly, K. Eckerman, M. Hiller, D. Jokisch, C. Samuels, R. Ward, R. Leggett
Oak Ridge National Laboratory, ORNL/TM-2021/2008
https://doi.org/10.2172/1817496

2018

ICRP Publication 138: Ethical Foundations of the System of Radiological Protection

K-W. Cho, M-C. Cantone, C. Kurihara-Saio, B. Le Guen, **N. Martinez**, D. Oughton, T. Schneider, R. Toohey, F. Zölzer (authors on behalf of ICRP)
Annals of the ICRP 47(1):1-65
https://doi.org/10.1177/0146645317746010

Conference Proceedings (Reviewed)

2025

Comparing internal dosimetric quantities used for management of occupational exposures

A. Barker*, **N.E Martinez**
Proceedings of the ANS Student Conference 2025 (47895)
https://www.ans.org/meetings/student2025/

Applying a sentinel species approach for rapid and affordable environmental monitoring of radiological contaminants

S.E. Donaher, A.K. Gonzales*, B.A. Powell, **N.E Martinez**
Proceedings of the Waste Management 2025 Conference (25091)
https://www.wmsym.org/technical-program/proceedings/

2023

Protection of the environment from exposure to ionising radiation: why and how evolution is timely for the ICRP system.

J. Garnier-Laplace, **N.E Martinez**, D. Copplestone, T. Schneider, A. Mayall, C-M. Larsson
Annals of the ICRP 52(S1):26-32
Proceedings of the Sixth International Symposium on the System of Radiological Protection
https://doi.org/10.54320/GGBK4567

An Introduction to Ecosystem Services for Radiological Protection

N.E Martinez, A. Canoba, S.E. Donaher, J. Garnier-Laplace, S. Kinase, A. Mayall, K. Stark, J. Whicker
Annals of the ICRP 52(S1):240-248
Proceedings of the Sixth International Symposium on the System of Radiological Protection
https://doi.org/10.54320/TOR01291

2020

The 2018 Bo Lindell Laureate lecture: finding common ground between science, ethics, and experience

N.E Martinez
Annals of the ICRP 49(1_suppl):9-31
Proceedings of the Fifth international Symposium on the System of Radiological Protection
https://doi.org/10.1177/0146645320946618

Radiation protection challenges in applications of ionizing radiation on animals in veterinary practice

N.E. Martinez and L. Van Bladel
Annals of the ICRP 49(1_suppl):158-168
Proceedings of the Fifth international Symposium on the System of Radiological Protection
https://doi.org/10.1177/0146645320931973

2015

Review of current methods in internal dosimetry of non-human biota

N.E. Martinez
Proceedings of the 15th International High-Level Radioactive Waste Management (IHLRWM) Conference, American Nuclear Society, 848-54

SELECTED RECENT PRESENTATIONS (out of >200; *student presentation; first author presenter unless otherwise indicated)

*Barker, A. and N.E. Martinez, "Comparing Internal Dosimetric Quantities Used for Management of Occupational Exposures," ANS Student Conference 2025, April 3-5, 2025, Albuquerque, NM

*Gonzales, A.K., E.R. Fix, D.A. Montgomery, S.E. Donaher, P. van den Hurk, N.E. Martinez, "Examination of uranium sorption, localization, and physiological response in the marine microalgae, Isochrysis galbana," 13th International Conference on Methods and Applications of Radioanalytical Chemistry (MARC), Kailua-Kona, Hawaii, March 28, 2025

*Wattier, B., **N. Martinez**, M. Carbajales-Dale, L. Shuller-Nickles, "Use of life cycle assessment (LCA) to advance optimisation of radiological protection and safety," 16th International Congress of the International Radiation Protection Association, July 10, 2024, Orlando, FL

Martinez, N.E., "Why Million Person Study?" NCRP Annual Meeting 2025: The Million Person Study: Current Results and Vision for Radiation Epidemiology and Protection, Bethesda, MD, March 24, 2025

Donaher, S.E., A.K. Gonzales, B.A. Powell, **N.E., Martinez**, "Applying a sentinel species approach for rapid and affordable environmental monitoring of radiological contaminants," Waste Management (WM) Symposia, Phoenix, AZ, March 12, 2025

Martinez, N.E., A. Canoba, K. Beaugelin-Seiller, J. Carpenter, S. Donaher, S. Geras'kin, S. Kinase, P. Kruse, N. Movsisyan, M. Simon-Cornu, A. Sovik, K. Stark, A. Sterling, W. Utembe, J. Whicker, "Ecosystem services (ES) in Environmental Radiological Protection: Updates from ICRP Task Group 125," 6th International Conference on Radioecology & Environmental Radioactivity (ICRER), Marseille, France, November 24-29, 2024

Martinez, N.E., and T. Schneider, "What is a "good" level of radiological protection? A review of tolerability and reasonableness and the work of ICRP Task Group 114," Society for Radiological Protection (SRP) Annual Conference 2024, May 15, 2024, Eastbourne, England

*Donaher, S., A. Gonzales, P. van den Hurk, B. Powell, **N. Martinez**, "Wild mussels as sustainable bioindicators in environmental radiological protection: Laboratory observations of radionuclide uptake," Society for Radiological Protection (SRP) Annual Conference 2024, May 15, 2024, Eastbourne, England

Martinez, N.E., D.W. Jokisch, C. Samuels, R. Leggett, S. Tolmachev, M. Avtandilashvili, G. Tabatadze, R. Goans, L. Dauer, J.D. Boice, Jr. "Radium Dial Painter Dosimetry: Person-Centered Innovations," 68th Annual Health Physics Society Meeting, Gaylord National Harbor, MD, July 26, 2023

*Gonzales, A., S. Donaher, B.D. Wattier, **N.E. Martinez**. "Exposure of *Lemna Minor* (Common Duckweed) to Uranium and Perfluorooctanoic Acid (PFOA) and Associated Biological Effects," SETAC Europe 33rd Annual Meeting, Dublin, Ireland, May 3, 2023

Martinez, N.E., "Challenges in the Radiological Protection of Animals in Veterinary Practice," 2nd United Arab Emirates Radiation Protection Week, Abu Dhabi, United Arab Emirates, March 15, 2023 **(invited)**

Martinez, N.E., A. Canoba, A. Mayall, J. Garnier-Laplace, "Ecosystem Services in Environmental Radiological Protection," 6th International Symposium on the System of Radiological Protection (ICRP 2021+1), Vancouver, Canada, November 10, 2022

Larsson, C.-M., **N. Martinez**, M. Takada, "Environmental recovery after a nuclear accident: what are the risks and what do we protect," NEA Workshop on Preparedness for Post-Nuclear Accident Recovery, Institute of Radiological Protection and Nuclear Safety (IRSN), Fontenay-aux-Roses, France, October 27-28, 2022 (**invited**)

Martinez, N.E., "Using art and expression to explore social and ethical issues relevant to the nuclear and radiological sciences with emphasis on the environment," 5th International Symposium on Ethics of Environmental Health (ISEEH), University of South Bohemia, České Budějovice, Czech Republic, September 13, 2022

*Donaher, S. and **N. Martinez**, "Toxicokinetics of military-derived radium and observation of elevated background uranium concentrations in an estuarine sentinel species," 5th International Conference on Radioecology & Environmental Radioactivity, Oslo, Norway, September 7, 2022

SPONSORED RESEARCH

Active sponsored projects

- "Consortium for Nuclear Forensics - CNF," National Nuclear Security Administration (NNSA), University of Florida, James Baciak (PI), Thrust Area Lead, $2,320,000 to Clemson ($25 million total) (2023-28) Clemson Co-PI (33%)
- "Empowering Collaborative Governance through Open Nuclear Waste Dialogue," US Department of Energy, Lindsay Shuller-Nickles (PI), Co-PI (25%), $2,000,000 (2023-25)
- "US NRC Fellowship Education Grant at Clemson University," United States Nuclear Regulatory Commission, 31310022M0006, PI (60%), $400,000 (2022-26)
- "Joint Faculty Appointment," UT-Battelle, LLC, c/o Oak Ridge National Laboratory, $25,000 (2019-20); $35,000 (2020-21); $35,000 (2021-22); $35,000 (2022-23); $25,000 (2023-24); $35,000 (2024-25)

Past projects

- "Combined Field and Laboratory Studies of Plutonium Aging and Environmental Transport," NNSA Weapons Activities NA-1, US Department of Energy, DE-NA0004095, Brian Powell (PI), Co-PI (33%), $449,947 (2022-25)
- "Coupling Life-Cycle Impact Assessment and Risk Assessment for Sustainability-Informed Decision Making," US Nuclear Regulatory Commission, 31310022M0004, Lindsay Shuller-Nickles (PI), Co-PI (30%), $499,859 (2021-24)
- "Evaluating Potential Effects to Marine Biota from Small-scale, Legacy Radioactive Objects," US Department of the Navy, N39430-21-C-2203, PI (60%), $399,732 (2021-24)
- "GRFP - Sarah Donaher," National Science Foundation Graduate Research Fellowship Program, 1744593, Advisor, $46,000/year in student support applied for by and awarded to Sarah Donaher (2020-23)
- "US NRC Fellowship Education Grant at Clemson University," United States Nuclear Regulatory Commission, 31310018M0006, PI (51%), $400,000 (2018-22)
- "Discriminatory Transcriptional Response of Environmental Microorganisms to Low-Dose Ionizing Radiation," Defense Threat Reduction Agency, HDTRA1-17-1-0002, PI (50%), $866,884 (2016-19)
- "Radionuclide Waste Disposal: Development of Multi-scale Experimental and Modeling Capabilities," Department of Energy, collaborator (5%) $7,250,000 (2014-19)

GRADUATE STUDENT ADVISING

Graduates, as advisor (7 MS, 4 PhD)

Student	Degree	Topic	Graduation
Hoelbling, Stephanie	MS	Competitive uptake of Pu and Fe in corn (*Zea mays*)	SM16
Willey, Adam	MS	Thermal neutron characterization and dose modeling of a plutonium-239/beryllium alpha-neutron source	F18
Root, Caitlin	MS	A mixed-methods approach for improving radiation safety culture at Princeton University	S19
Stagich, Brooke	MS	Uncertainty and sensitivity analysis for the Savannah River National Laboratory's environmental dosimetry models LADTAP XL© and MAXINE (non-thesis)	S19
Montgomery, Dawn	MS	Influence of plant exudates on technetium-99 mobility through vadose zone soils (en route; non-thesis; co-advisor)	S19
Montgomery, Dawn	PhD	An Integrative Approach Concerning Radiological Protection of the Environment: Plant Influence on Biogeochemistry and Transport, Plant Uptake, and Non-Human Biota Dosimetry for Select Radionuclides (co-advisor)	F20
Wattier, Bryanna	MS	Use of ^{14}C-PFOA to Study Uptake and Biological Effects of PFOA in Brassica juncea (en route; thesis)	S22
Trotter, Kelli	MS	Comparison of radon concentrations across Clemson University (non-thesis)	SM22

Manglass, Lisa	PhD	Partitioning and Microdosimetry of Plutonium-239 and Iron-55 in Environmental Bacteria Grown in Liquid Cultures	S23
Donaher, Sarah	PhD	Toxicokinetics and Toxicodynamics of Radium-226 in an Estuarine Sentinel Species *Geukensia demissa*	S24
Wattier, Bryanna	PhD	Supporting Holistic, Informed, Decision-Making through the Complementarity of Life Cycle Assessment and Radiological Protection (co-advisor)	F24

Graduates, as committee member (12 MS, 7 PhD)

Student	Degree	Topic	Graduation
Locklair, Jonathan	MS	Adsorption and detection of cesium-137 from aqueous solutions (non-thesis)	F15
Caudill, Jeff	MS	Minimum Detectable Concentration Determination for Radionuclides of Interest via Scintillation in Polyvinyl Toluene Resin Matrices (non-thesis)	S17
Santoso, Sam	MS	Investigation of uranium and thorium uptake in *Pinus taeda* (Loblolly Pine) and *Dichanthelium commutatum* (Variable Panicgrass) from a naturally occurring source	SM17
Dozier, Rebecca	MS	Examination of Technetium Transport Through Soils Under Contrasting Redox Conditions	S18
Neuder, Joel	MS	Rates and Extents of Explosive Degradation within Different Wastewater Environments	S19
Peruski, Kathryn	PhD	Dissolution of Neptunium Oxide and Transport of Aqueous and Colloidal Neptunium Species in the Vadose Zone	S20
Watson, Mara	PhD	Developing a novel neutron spectrometer using the inverse Bonner sphere spectrometer concept for international safeguards	S21
Edayilam, Nimisha	PhD	Elucidating the role of plant-induced biogeochemical processes on the mobilization and transport of uranium and phosphorus in soils	S21
Van Valkinburgh, Katie	MS	Using low- and medium-cost particulate matter sensors to assess indoor and outdoor air quality	S21
Wheeler, Jessie	MS	Effects of seasonal variability on the mobility of Cs-137 in an abandoned reactor cooling pond	S21
Parker, Connor	PhD	Wetland uranium transport via iron-organic matter flocs and hyporheic exchange	S22
Wintenberg, Molly	PhD	Effects of continuous *in* situ low dose ionizing radiation on microorganisms (acting co-advisor)	S22
Tepeli Aydin, Selma	MS	Radiation Exposure Calibration of the Al_2O_3:C with Radium-226 and Cesium-137 using the OSL Method	F23
Allen, Carson	MS	Hydrogen Isotope Exchange in Diffusion Pump Oils	SM24
Tillman, Cooper	MS	Extraction of Neutron-Gamma Irradiated Diffusion Pump Oils	SM24
Williams, Reid	PhD	Biogeochemical controls of cesium-137 migration in surface waters and vadose zone sediments at the US DOE Savannah River Site	F24
Thomas, Marlow	MS	Photosynthetic degradation of PFAS by Chlorella vulgaris (green algae)	F24
Wolff, Missoury	PhD	Design and Characterization of Lignin-Based, Thermoresponsive Soft Composites with Improved Mechanical and Transport Properties	S25

Motta, Katie	MS	Impact of Perfluoroalkyl Substances on *in-situ* Reductive Dechlorination of Chlorinated Ethenes Using Activated Carbon	SM25

Current Graduate Advising

Gonzales, Annelise (PhD) "Response of plants to multiple contaminant exposure," Expected F25
Barker, Aidan (MS) "Internal Dose Coefficient Comparison and Analysis" Expected F25
Ryan, Delaney (PhD) "TBA" Expected S29

Post-Doctoral Research Advisees

Wijewardana, Chathu (2020 - 22), PhD Plant and Soil Science Mississippi State University, CUFELLOW; Project focus on contaminant effects in *Brassica rapa*

Undergraduate Thesis Committees

Walker, Dawson, "Provisional Living on a Dying Planet," Department of English, F20 (Committee Member)
Abraham, John, "Effect of Fe-55 on *Saccharomyces Cerevisiae* Colonies," Department of Physics and Astronomy, F20 (acting advisor)
Hubka, Caleb, "Radium Dial Watch Hands" Department of Physics and Astronomy, S25 (acting advisor)

UNIVERSITY TEACHING (*courses developed)

- EES 4/6100, Environmental Radiation Protection, Fall 2014-2022, Spring 2024
- EES 4/6140*, Radioecology, Spring 2016-17, 19, 20, 22, Fall 2023-25
- EES 4800, Environmental Risk Assessment, Fall 2016-20, 22, 24, 25
- EES 8150*, Radiobiology, Spring 2018, 21, 23, 25
- EES 8830*, Advanced Topics in Radioecology, Summer 2019
- EES 4900, Creative Inquiry, Spring 2019, 22
- EES 8180*, Nuclear Culture, Spring 2022, 24 (S20 taught as 1 credit special topics)
- LS 2380, Vinyasa Flow Yoga, Fall 2016-20,22-25, Spring 2017-24
- LS 2350, Basic Yoga, Summer 2017-18.

PROFESSIONAL ACTIVITIES

International

- International Commission on Radiological Protection
  - Member, Main Commission (2025 -)
  - Member (2017-25) and vice-chair (2021-25), Committee 4 "Application of the Commission's Recommendations" (elected)
  - Member, Task Group (TG) 94: Ethics of Radiological Protection (2015-18)
  - Co-chair, TG 110: Radiological Protection in Veterinary Practice (2018-23)
  - Vice-chair, TG 114: Reasonableness and Tolerability in the System of Radiological Protection (2019-Present)
  - Chair, TG 125: Ecosystem Services in Environmental Radiological Protection (2022-Present)
  - ICRP Representative, Nagasaki University International Advanced Training Course on Stakeholder Recovery After Nuclear Disaster, Japan (2023) [https://nagasaki-u-seminar.jp/2023oct/]
- Nuclear Energy Agency (NEA) International Radiation Protection School (IRPS), Stockholm, Sweden
  - Faculty, "Radiological Protection - Ethics" (2019, 2021-Present); "Areas of significant evolution since ICRP Publication 103" (2023; co-presenter); "RP of the Environment" (2024-present; co-presenter)
  - Member, Advisory Board (2020-Present)
- International Radiation Protection Association (IRPA)
  - Member, Task Group on Public Understanding of Radiation Risk (2014-20)
  - Organizer and (Co-)Judge, Young Scientists and Professionals Award, IRPA North American Regional Congress, St Louis, Missouri (Feb 2022)
- Member, International Advisory Panel, *Journal of Radiological Protection* (2024-Present)
- Advisory Board, International Journal of Radiation Biology (2025-)

National

- National Council on Radiation Protection and Measurements
  - Member (elected) (2022-Present)
  - Vice-chair, Scientific Committee 6-13: Methods and Models for Estimating Organ Doses from Intakes of Radium (2021-Present)
  - Member and Secretary, PAC-6: Radiation Measurements and Dosimetry (2023-Present)
- American Academy of Health Physics
  - Member (2015-Present)
  - Member (2021-25), Vice-Chair (2024), and Chair (2025) Panel of Examiners for Part 1 of the Certified Health Physics Exam
- Member, US Department of Energy Environmental Management Advisory Board (2019-23) (appointed)
- Member, CDC/NIOSH Advisory Board on Radiation and Worker Health (2022-Present) (appointed)
- Member, National Academies of Sciences, Engineering, and Medicine (NASEM) Consensus Committee on Feasibility of Assessing Veteran Health Effects of Manhattan Project (1942-1947) Related Waste (2023 - Present) (appointed)

UNIVERSITY SERVICE

Committees

- University: Commission on Women, (2020-Present), Chair-Elect (2022-23), Chair (2023-25)
- University: Faculty Advocating for the Commitment to Ethics (FACE) Committee, Rutland Institute for Ethics (2019-22)
- College: CECAS Dean's Advisory Council (2019-22)
- College: CECAS Teaching Awards Committee (2021-22)
- School: EEES Representative, SCEEES Tenure, Promotion and Reappointment Committee (2024-Present)
- Department: Undergraduate Environmental Engineering Curriculum Committee (2017-Present)
- Department: Advisory Committee (2014-Present)

Other Service

- Environmental Engineering Undergraduate Academic Advisor (2017-Present) (10-14 students per semester)
- Volunteer, CECAS PEER/WISE Project WISE (Fall 2019, Summer 2021-22)
- Volunteer, CECAS PEER/WISE Girl Scouts and Friends Day (Spring 2018-19, Fall 2021)
- Volunteer, CECAS PEER/WISE STEM Day (Spring 2020, 2022)
- Judge, CU Annual High School Ethics Case Competition (2019-20)
- Volunteer instructor, Yoga for Self-Care, CECAS WISE mentors (2019)
- Volunteer instructor, Online Yoga with CECAS WISE (Spring 2020)
- Volunteer instructor, Yoga for Busy People, CU Presidents Leadership Institute (Spring 2023)
- Volunteer instructor, Desk Yoga, CUGrow EmpowHER (Summer 2024)
- Participant "Dinner with Experts" and speaker, American Physical Society (APS) Conferences for Undergraduate Women in Physics (CUWiP) 2024, Clemson University (Spring 2024)

Updated August 2025.