Hanna Moussa, Ph.D., Associate Professor of Practice

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I. Education

December 2000 — **Ph.D. in Nuclear Engineering (Radiological/Health Physics)**
University of Tennessee, Knoxville, TN
Dissertation: *Estimation of Absorbed Fraction to the Anterior Nose.*
Advisor: Prof. Lawrence W. Townsend

May 1991 — **M.S. in Physics (Radiological Sciences)**
The University of Mass at Lowell
Thesis: *Analysis in support of a design for low Energy source of Compton Scattered Photons*
Advisor: Prof. George Chabot

May 1990 — **B.S. Physics (Health Physics)**
The University of Massachusetts at Lowell

II. Professional Experience

05/2023 — **Associate Professor of Practice**
Institution: Texas Tech University, Lubbock, TX, USA
Department of Physics and Astronomy
Research Area: Health and Medical Physics

09/2013- 05/2023 — **Assistant Professor**
Institution: Texas Tech University, Lubbock, TX, USA
Department Mechanical Engineering Department
Research Area: Health and Medical Physics

12/2012-08/2013 — **Assistant Professor**
Institution: Texas Tech University, Lubbock, TX, USA
College of Human Sciences.
Research Area: Health & Medical Physicist.

2004- Present — Research Assistant Professor
Institution: University of Tennessee, Knoxville, TN.
Research area: Health & Medical Physicist.

2008-2010	**Senior Health Physicist** Institution: Walter Reed Army Medical Center Washington, D.C.
2002-2004	**Director and RSO** Institution: University of Tennessee, Knoxville, TN.
2001-2002	**Interim Radiation Safety Officer (RSO).** Institution: University of Tennessee, Knoxville, TN
1997-2001	**Assistant Radiation Safety Officer (RSO).** Institution: University of Tennessee, Knoxville, TN

III. Professional societies

1992- Present	**Health Physics Society, Plenary member.**
2000- Present	**Radiation Research Society, Member.**

IV. Honors and Awards

2015	Third place award in the accelerator competition for the best presentation (graduate student award) at Health Physics meeting, July 2015.
2015	Health Physics Travel award for two of Dr. Moussa's graduate students.
2010	Battelle Travel Fund, Albuquerque, NM.
2003	University of Tennessee, Travel Award, Brisbane, Australia.
2001	Radiation Research Society Award, San Juan, Puerto Rico.
2000	Health Physics Society Travel Grants, Denver, CO.

V. Teaching

2013-2020 (3 semesters)	**Foundation of Nuclear Energy (ME 4390)** This undergraduate course provides an overview of nuclear and radiological engineering with emphasis on concepts of modern physics, radioactivity and decay process, radiation interaction with matter, radiation protection, radiation dose and basic health physics, neutron interaction, and nuclear reaction.
2013-2023 (15 semesters)	**Engineering Mechanics I-Statics (ME2301)** The objective of this course is to teach the undergraduate student the physical laws governing the response of engineering systems to forces, equilibrium of particles and rigid bodies, free-body diagrams, shear-moment diagrams, trusses, machines, friction, and area moment of inertia
2015-2020 (2 semesters)	**Principle of Radiation and Simulation (ME 6330 S. topic)** This graduate course covers an important area in Health Physics with specific emphasis on the principle of radiation interactions with matter, applications of the Monte Carlo Method to simulate those interactions, and to estimate the exposure, dose, and absorbed dose in human beings and matter as a result of radiation exposure.

Teaching before TTU

Georgia Institute of Technology (TA)
HP 6750 - Radiation Detection, (4 credits) Fall-1993.
The University of Tennessee (TA)
NE 433 – Radioassay and Dosimetry Laboratory (3 credits). Designed and taught the laboratory (Fall 1994, 1995, and Spring 1995).
NE 301 - Fundamentals of Nuclear & Radiological Engineering (3 credits), fall 2005.
NE 431 - Radiation Protection (3 credits) spring 2006.

VI. Undergraduate Student Supervision at TTU

List of graduated students with B.S

Degree	Student Name	Working period	Topic
B.S.	Curtis Hallman	Spring 2016 and summer 2017	Radiation dose to the human leg from external exposure
B.S.	Garger Samuel	Spring 2017	Atoms, Radiation, and Radiation protection
B.S.	David Matt Pippen	Spring 2017	Atoms, Radiation, and Radiation protection
B.S.	Logan Boyd	Summer 2019	Aeroelastic Flutter
B.S.	Gutierrez Cesar	Summer 2019	Airfoil Design

List of graduated students Ph.D. and M.S

Degree	Student Name	Joining date	Anticipated graduation date	Status	Current position
Ph.D.	Al Maqsudur Rashid	9/2014	10/2018	Graduated	Process Engineer, Intel, Arizona
Ph.D.	Mohammad Yosofvand	9/2018	06/2023	Graduated	Post Doctor Research fellow, Memorial Sloan Kettering Cancer Center (MSK), Manhattan NY
Ph.D.	Rabin Dhakal	9/2019	08/2022	Graduated	Scientist III Elecrtic Power Research Institute (EPRI), NC
M.S.	Kafil Uddin Chowdhury	9/2014	12/2017	Graduated	Engineer, Fiat Chrysler Automobiles (FCA)
M.S.	Alan Michel Lovelace	9/2016	6/2017	Graduated	Texas Instruments RFAB

VII. Membership in Theses Committees

Ph.D. (n=5)	Chandrasekhar Meduri, Niloofar Fathollahi, Elham Davoodi Sumedha Liyanage, Poorna Tharaka
M.S. (n=2)	Prakash Parajuli, Paul Sims
M.S. (n=2) UT Knoxville	Youssef Charara, Amy Street

VIII. Service

Community and Professional service

2014 – 2021	Christ in Action Student Ministry, providing support for International Students.
2014-2023 (6 times)	South Plains Regional Science and Engineering Fair (SPRSEF).
2014-2018 (3 times)	Roscoe Wilson Elementary School, Science Fair Judging
2008- Present	Reviewer, Health Physics Journal
2015-Present	Reviewer for NASA post-Doctoral program (NPP) through Oak Ridge Associated Universities (ORAU)
2015- Present	NASA EPSCoR reviewer panel (The Experimental Program to Simulate Competitive Research)
2015-2020	NASA, Grants Peer Reviewer
2019	Review for HERO: NASA Human Research Program Omnibus Opportunity
2013-2015	Health Physics Society, serving on the membership committee.
2008-2015	Reviewer, Particle Physics Insights
2008-2016	Editor in chief, Particle Physics Insights, Online Journal.
2020	Scientific Reports-Nature-Springer, Reviewer,

Institutional Leadership and administration

2013	University Engineering Alliance committee member.
2015-2016	Member of Safety Committee, TTU, Mechanical Engineering.
2016-2017	Dean's Representative for Ph.D. Graduate Dean's Representative for two students (Susan Tami and Shashwati U. Atwe).
2017	Development and training for imaging software "cellular growth" in Nutritional Sciences
2017	Graduate School fellowship reviewer.
2018	Graduate Student Committee Member (for 5 students)
2018	Upgrade and upgraded imaging software development "photomicrograph analyzer" for Nutritional Sciences
2018 and 2020	Graduate Poster Judging.
2019	Graduate Student Committee Member.

IX. External funding (Total external funding: $ 135,889)

Year	Title of the proposed research	Agency	Amount ($)	Status	Role
2013	1. Develop lookout tables or parameterizations (Curve Fits) of Particle Fluences using the FLUKA Monte Carlo Code (see the congratulation letter below)	NASA	50,889	Awarded	Sub-contractor PI (100%)
2014	2. Develop lookout tables or parameterizations (Curve Fits) of Particle Fluences using the FLUKA Monte Carlo Code	NASA	60,000	Awarded	Sub-contract PI (100%)
2020	3. Nutrition Bench-to-Community Engaged Scholars in Texas (Nutrition BEST) REEU Program).	USDA-AFRI	500,000	Awarded	Collaborating Mentor (5%)

Internal Funding (Total internal funding: $20,000)

2015	5. Developing Fourier Transform Infrared Imaging (FTIR) for Nutrition and Obesity Research	ORCP&FP	7,000	Awarded	PI (30%)
2016	10. Modeling of Mammography Radiation Exposure on Human Adipose Breast Cancer Tissue Interaction	ORC- P&FP	8,000	Awarded	PI (80%)
2019	11. Novel Application of MAGIC-f Gel in Radiotherapy	VPR-PAP	5,000	Awarded	PI (100%)

X. Journal Publications

Publications affiliated with Texas Tech

*** Refers to my undergraduate or graduate students in ME**

Peer-Reviewed Journal Publications

1. Ashish Sedai1, Rabin Dhakal*, Shishir Gautam, Bijaya Kumar Sedhain, Biraj Singh Thapa, Hanna Moussa, Suhas Pol1. *Wind energy as a source of green hydrogen production in the USA*. *Clean Energy*, February 2023, Vol. 7, No. 1, 8–22. https://doi.org/10.1093/ce/zkac075
2. Mahsa Yavari, Latha Ramalingam, Breanna N Harris, Chanaka Nadeeshan Kahathuduwa, Angela Chavira, Caroline Biltz, Logan Mounce, Kaylee Alers Maldonado, Shane Scoggin, Yujiao Zu, Nishan Sudheera Kalupahana, Mohammad Yosofvand*, Hanna Moussa, Naima Moustaid-Moussa. *Eicosapentaenoic Acid Protects against Metabolic Impairments in the*

APPswe/PS1dE9 Alzheimer's Disease Mouse Model. The Journal of Nutrition, April 2023. 153,4, P 1038-1051. https://doi.org/10.1016/j.tjnut.2023.01.030

3. Rabin Dhakal*, Ashish Sedai, Suhas Pol, Siva Parameswaran, Ali Nejat, and Hanna Moussa. *A Novel Hybrid Method for Short-Term Wind Speed Prediction Based on Wind Probability Distribution Function and Machine Learning Models*. Applied Sciences, September 8, 2022. 12 (18), 9038. https://doi.org/10.3390/app12189038.
4. Valerie J. Rodriguez-Irizarry, Alina C. Schneider, Daniel Ahle, Justin M. Smith, Edu B. Suarez-Martinez, Ethan A. Salazar, Brianyell McDaniel Mims, Fahmida Rasha, Hanna Moussa, Moustaïd-Moussa, Kevin Pruitt, Marcelo Fonseca, Mauricio Henriquez, Matthias A. Clauss, Matthew B. Grisham, and Sharilyn Almodovar. *Mice with humanized immune system as novel models to study HIV-associated pulmonary hypertension.* Frontiers in Immunology, August 5, 2022. Doi: 10.3389/fimmu.2022.936164.
5. Tariful Islam, Iurii Koboziev, Kembra Albracht-Schulte, Shane Scoggin, Mohammad Yosofvand*, Latha Ramalingam, Hanna Moussa, Preethi Gunaratne, and Naima Moustaid-Moussa. *Curcumin Alters Gut Microbiota and Reduces Adipose Tissue Inflammation in High Fat Diet-Induced Obesity*. Molecular Nutrition & Food Research (Wiley) (2021).Al Maqsudur Rashid*, Rabin Dhakal*, Hanna Moussa. *Estimating Absorbed Dose to Breast Adipose Tissue from Mammogram*. J Med Phys 2021; 46: 171-80.
6. Rabin Dhakal*, Mohammad Yosofvand*, Hanna Moussa. *Development and Application of MAGIC-f Gel in Cancer Research and Medical Imaging.* Applied Sciences, August 24, 2021.
7. Rabin Dhakal*, Mohammad Yosofvand*, Mahsa Yavari, Ramzi Abdulrahman, Ryan Schurr, Naima Moustaid-Moussa, and Hanna Moussa. *Review of Biological Effects of Acute and Chronic Radiation Exposure on Caenorhabditis elegans.* Cells, August 3, 2021. https://doi.org/10.3390/cells10081966.
8. Rabin Dhakal*, Ashish Sedai, Suman Paneru, Mohammad Yosofvand* and Hanna Moussa, "Towards a Net Zero Building Using Photovoltaic Panels: A Case Study in an Educational Building. Journal of Renewable Energy Research. June 2021. Volume 11, issue 2; 879-889
9. Flávia Sardela de Miranda, João Pedro Tôrres Guimarães, Kalhara R Menikdiwela, Brennan Mabry, Rabin Dhakal*, Rakhshanda layeequr Rahman, Hanna Moussa, Naima Moustaid-Moussa. *Breast Cancer and the Renin-Angiotensin System (RAS): Therapeutic Approaches and Related Metabolic Diseases*. Molecular and Cellular Endocrinology. Volume 528, 15 May 2021, 111245. (2021).
10. Rabin Dhakal*, Reed Nieman, Daniel Valente, Thiago M. Cardozo, Bhumika Jayee, Amna Aqdas, Wenjing Peng, Adelia A. J. Aquino, Yehia Mechref, Hans Lischka, Hanna Moussa. *A General New Method for Calculating the Molecular Nonpolar Surface for Analysis of LC-MS Data*. International Journal of Mass Spectrometry. Volume 461, March 2021, 116495. https://doi.org/10.1016/j.ijms.2020.116495.
11. Koboziev, I., Scoggin, S., Gong, X., Mirzaei, P., Zabet-Moghaddam, M., Yosofvand, M.*, Moussa, H., Jones-Hall, Y., Moustaid-Moussa, N. *Effects of Curcumin in a Mouse Model of Very High Fat Diet-Induced Obesity*. Biomolecules. September 25, 2020. Volume 10, issue 10, 1368; https://doi.org/10.3390/biom10101368. PubMed PMID: 32992936; PubMed Central PMCID: PMC7650718.

12. Rabin Dhakal*, Yadav B., Kumar., Koirala, N., Kumal, B. B., Moussa, H. *Feasibility study of distributed wind energy generation in Jumla Nepal.* International Journal of Renewable Energy Research. September 2020. Volume 10, issue 3; 1501- 1511.

13. Fahmida Rasha, Latha Ramalingam, Kalhara Menikdiwela, Arelys Hernandez, Hanna Moussa, Lauren Gollahon, Rakhshanda Layeequr Rahman, Naima Moustaid-Moussa. *Renin-angiotensin system inhibition attenuates adipocyte-breast cancer cell interactions.* Experimental Cell Research. September 2020, Volume 394, issue1: 2114. DOI: 10.1016/j.yexcr.2020.112114. Epub 2020 Jun 3. PubMed PMID: 32504676.

14. Mohammad Yosofvand*, M., Liyanage, S., Kalupahana, N.S., Scoggin, S., Moustaid-Moussa, N., Moussa, H. AdipoGauge software for analysis of biological microscopic images. Adipocyte. July 11, 2020. Volume 9, issue 1:360-373. DOI:10.1080/21623945.2020.1787583. PubMed, PMID: 32654628; PubMed Central PMCID: PMC7469447.

15. Fahmida Rasha, Chanaka Kahathuduwa, Latha Ramalingam, Arelys Hernandez 1, Hanna Moussa, Naima Moustaid-Moussa. *Combined Effects of Eicosapentaenoic Acid and Adipocyte Renin-Angiotensin System Inhibition on Breast Cancer Cell Inflammation and Migration*. Cancers. January 16, 2020. Volume 12, issue 1, pp-360-373. https://doi.org/10.3390/cancers12010220. PubMed PMID: 31963198; PubMed Central PMCID: PMC7016836.

16. Arwa Al-Jawadi, Fahmida Rasha, Latha Ramalingam, Sara Alhaj, Hanna Moussa, Lauren Gollahon, Suranganie Dharmawardhane, Naima Moustaid-Moussa. *Protective Effects of Eicosapentaenoic Acid in Adipocyte-Breast Cancer Cell Cross Talk.* The Journal of Nutritional Biochemistry. January 2020. Volume 75:108244. DOI: 10.1016/j.jnutbio.2019.108244. Epub 2019 Oct 15. PubMed PMID: 31704550.

17. Al Maqsudur Rashid*, L Ramalingam, A. Al-Jawadi, N Moustaid-Moussa, Hanna Moussa. *Low Dose Radiation, Inflammation, Cancer, and Chemoprevention.* International Journal of Radiation Biology. Volume 95, issue:4, 2019. Epub 2018 July 2. Doi.org/10.1080/ 09553002.2018.1484194. International Journal of Radiation biology 95(4), 506-515.

18. Latha Ramalingam; Kalhara R. Menikdiwela; Stephani Clevenger; Tochi Eboh; London Allen; Iurii Koboziev; Shane Scoggin; Al Maqsudur Rashid*; Hanna Moussa; Naima Moustaid-Moussa. *Maternal and Postnatal Supplementation of Fish Oil Improves Metabolic Health of Mouse Male Offspring.* Obesity Journal. October 3, 2018. DOI:10.1002/oby.22319.

19. Alan Mitchel Lovelace*, Al Maqsudur Rashid*, Wouter C. de Wet, Lawrence W. Townsend, J Wesley Hines, Hanna Moussa: *Solar Particle Event Dose Forecasting Using Regression Techniques*. Space Weather Journal. Volume 16, Issue 8. pages 1073-1085. July 24, 2018. https://doi.org/10.1029/2017SW001773.

20. Al-Jawadi A; Moussa H; Ramalingam L; Dharamawardhane S; Gollahon L; Gunaratne P; Layeequr Rahman R; Moustaid-Moussa N. *Protective properties of n-3 fatty acids and implications in obesity-associated breast cancer*. Journal of Nutrition Biochemistry. March 2018, 53:1-8. DOI: 10.1016/j.jnutbio.2017.09.018.

21. Poorna Tharaka Wansapura; Rohan Suranga Dassanayake; Abdul N. Hamood; Phat Tran; Hanna Moussa; Noureddine Abidi. *Preparation of Chitin-CdTe Quantum Dots Films and*

Antibacterial Effect on Staphylococcus aureus and Pseudomonas aeruginosa. Journal of Applied Polymer Science. February 7, 2017. doi:10.1002/app.44904.

22. Sanjit Acharya; Yang Hu; Hanna Moussa; Noureddine Abidi. *Preparation and characterization of transparent cellulose films using an improved cellulose dissolution process*. Journal of Applied Polymer Science. February 7, 2017. DOI: 10.1002/app.44871.
23. Mandana Pahlavani; Fitia Razafimanjato; Latha Ramalingam; Nishan S Kalupahana; Hanna Moussa; Shane Scoggin; Naima Moustaid-Moussa. *Eicosapentaenoic Acid Regulates Brown Adipose Tissue Metabolism in High Fat Fed Mice and in Clonal Brown Adipocytes*. The Journal of Nutritional Biochemistry. Volume 39, January 2017, Pages 101-109. http://dx.doi.org/10.1016/j.jnutbio.2016.08.012.
24. Yang Hu; Shanshan Li; Tanya Jackson; Hanna Moussa; Noureddine Abidi. *Preparation, characterization, and cationic functionalization of cellulose-based aerogels for wastewater clarification.* Journal of Materials. Volume 2016, Article ID 3186589, 10 pages. November 16, 2016. http://dx.doi.org/10.1155/2016/3186589.
25. Rohan S Dassanayake; Erandathi Rajakaruna; Hanna Moussa; and Noureddine Abidi. *One-pot synthesis of Mno2-chitin hybrids for effective removal of methylene blue.* International Journal of Biological Macromolecules. Volume 93, August 2016, pages 350-358. Hptt://dx.doi.org/10.1016/j.ijiomac.2016.08.081.
26. L.W. Townsend, J.A. Porter, W.C. deWet; W.J. Smith, N.A. McGirl, L.H. Heilbronn; H.M. Moussa: *Extreme Solar Event of AD775: Potential Radiation Exposure to Crews in Deep Space*. Acta Astronautica, Volume 123, June–July 2016, Pages 116–120. doi:10.1016/j.actaastro. 2016.03.002.
27. Sumedha, Liyanage, Noureddine, Abidi., Dick, A., Hanna Moussa: *Chemical and physical characterization of galactomannan extracted from guar cultivars (Cyamopsis tetragonolobus L.)*. Industrial Crops and Products, Volume 74, (2015), Pages 388–396. DOI: 10.1016/j.indcrop.2015.05.013.
28. Townsend, L. W., Adamczyk, A. M., Werneth, C. M., Moussa, H., and Townsend, P, J., Jeremy P.: *Estimates of extreme solar particle event radiation exposures on Mars*. Progress in Nuclear Science and Technology. Volume 4 (2014) pp. 793-797. 2014. DOI: 10.15669/pnst.4.793.
29. Moussa, H., Melanson, M. A. (U.S. Army Public Health Command, Aberdeen Proving Ground, MD): *Translation of Dose Coefficients from ICRP 53 to ICRP 80*. Health Physics, Vol. 104, No. 2, February 2013, pp. 224-226. DOI: 10.1097/HP.0b013e3182758035.

Publications prior to TTU:

1. Townsend, L.W.; Moussa, H.M.; and Charara, Y.M.: *Monte Carlo Simulations of Energy Losses by Space Protons in the CRaTER Detector*. Acta Astronautica, doi: 10.1016/j.actaastro. 2009.08.007.
2. Moussa, H. M: *Dust Particle Size Effects on Absorbed Fraction Values in the Anterior Nose.* Health Physics, Vol. 93, No. 4, October 2007, pp. 307-311. DOI: 10.1097/01. HP. 0000268728. 63088.0c.

3. Charara, Y.; Townsend, L.; Moussa, H.M.; Hatcher, R.; Dudney, C.; McKee, S.; McKinnis, P.; Ottinger, K. *Calculated Energy Loss Spectra in the CRaTER Detector for Selected Cosmic Ray Ions*, 2007 IEEE Aerospace Conference, Vol (1-9), p 508-519, Mar 3-10, 2007. 10.1109/AERO.2007.352780. Big Sky, MT.
4. Moussa, H. M.; Eckerman K.F.; and Townsend L.W.: *Charged Particle Equilibrium Effects on The Electron Absorbed Fraction in The Extrathoracic Airways*. Radiation Protection Dosimetry, Vol. 121, No. 3, December 2006, pp. 252 - 256.
5. Townsend, L.W.; Stephens Jr. D.L.; Hoff. J.L.; Zapp, E.N.; Moussa, H.M.; Miller, T.M.; and Campbell, C.E.: *The Carrington event: Possible doses to crews in space from a comparable event*. Advances in Space Research, VOL. 38, issue 2, 2006, pp. 226 – 231.
6. Townsend, L.W.; Moussa, H.M.; Charara, Y. *Characterization of the lunar radiation environment using the CRaTER detector*. 2006 IEEE Aerospace Conference, Vol (1-9), p 343+. DOI: 10.1109/AERO.2006.1655759. Big Sky, MT.
7. Moussa, H. M.; Eckerman K. F.; and Townsend, L. W.: *Electron Absorbed Fractions Based on a New Model of the Anterior Nasal Passage*. Health Physics, Vol. 86, No. 1, January 2004, pp. 19-24.
8. Moussa, H. M.; Eckerman K. F.; and Townsend, L. W.: *Self-Absorbed Effect on Electron Absorbed Fraction in the Anterior Nose*. Radiation Protection Dosimetry, Vol. 99, Nov. 1-4, 2002, pp. 473-474.
9. Moussa, H. M.; Eckerman K. F.; and Townsend, L. W.: *Absorbed Fraction Sensitivity to Changes in Size of the ICRP Nose Model*. Health Physics, Vol. 82, No. 3, March 2002, pp. 392-394.
10. Townsend, L., Stephens, D., Hoff, J., Braley, G. et al., and Moussa H. M. *Worst-Case Solar Energetic Particle Events for Deep Space Missions*. SAE Paper N. 01ICES-292.012001-01-2330, 2001, DOI: 10.4271/2001-01-2330.
11. Moussa, H. M.; Eckerman K. F.; Townsend, L. W.; and Pevey, R.E: *Estimation of Electron Absorbed Fraction in the Extrathoracic Airways.* Health Physics, Vol. 80, No 1, January 2001, pp. 12-15.

XIV. Peer-Reviewed Conference and Presentations

Texas Tech Conferences:

*** Refers to my undergraduate or graduate students in ME**

1. Mohammad Yosofvand*, Naima Moustiad-Moussa, Rakhshanda Rahman, Hanna Moussa. *Investigating the correlation between the CD68 protein expression and body indicators in patients diagnosed with breast cancer.* 22nd Annual Graduate Students Research Poster Competition. Texas Tech University, Lubbock, TX. March 30, 2023.
2. Mohammad Yosofvand*, Naima Moustiad-Moussa, Rakhshanda Rahman, Hanna Moussa. *Digital Pathology Goes Deep: Accelerating Tumor-Infiltrating Lymphocyte Scoring with AI and Deep Learning*. ORI 8th Annual Meeting Diabetes: A Texas Sized Issue. TTUHSC Lubbock Tx. May3, 2023.

3. Rabin Dhakal*, Rajes Ram Muthukumar, Siva Parameswaran, Hanna Moussa. *Developing Mobile Wind Energy Unit for Supplying Power for Hurricane Affected Community*. Texas Hurricane Conference, University of Houston, Taxes, USA. August 6, 2021.
4. Hanna Moussa. *Radiation Modeling and application to Breast Cancer Research*. School of Veterinary and school of Pharmacy, Texas Tech University, Amarillo, TX. June 16, 2021.
5. Rabin Dhakal*, Rajes Ram Muthukumar, Siva Parameswaran, Hanna Moussa. *Error Correction of Weibull Based Wind Forecasting System using Gaussian Filter*.11th Advanced Energy Conference, New York, USA (online), June 9-10, 2021.
6. Mohammad Yosofvand*, Rakhshanda Layeequr Rahman, Hanna Moussa. *Accurate Assessing of Stromal Tumor-Infiltrating Lymphocytes in Breast Cancer Using Machine Learning Systems*, 6th Annual ORI meeting, Texas Tech University, Lubbock, TX, May 12, 2021.
7. Rabin Dhakal* and Hanna Moussa. *Towards a Net Zero Building for an Educational Institute Using Photovoltaic System*. 20thAnnual Graduate Students Research Poster Competition. Texas Tech University, Lubbock, TX. March 11, 2021.
8. Mohammad Yosofvand*, Hanna Moussa. MAGIC-f gel dosimetry with MRI reading for irradiated vials. 20th Annual Graduate Research Poster Competition. Texas Tech University, Lubbock, Tx. March 11, 2021.
9. Rabin Dhakal*, Hanna Moussa. Feasibility Study of Distributed Wind Energy System in an Off-Grid Community. Virtual 3 Minute Thesis Competition presentation organized by Graduate School on zoom. Texas Tech University. October 29th, 2020.
10. Mohammad Yosofvand*. (Zoom meeting). Online Training and teaching different aspects and features of "AdipoGauge" software for the students from the Nutrition lab (NIOR). College of Human Science, Nutrition Department, Texas Tech University. November 11, 2020.
11. Mohammad Yosofvand*. Developing AI software to score TILs in Breast Cancer Cells. Virtual 3 Minute Thesis Competition presentation organized by Graduate School on zoom. Texas Tech University. October 29th, 2020.
12. Rabin Dhakal*, Daniel Valente, Reed Nieman, Adelia Aquino, Hans Lischka, Yehia Mechref, Hanna Moussa: *Theoretical calculation of Nonpolar Surface Areas of Glycam with Implicit Solvent Methods. Geant4.* 19th Annual Graduate Research Poster Competition. Texas Tech University, Lubbock, Tx. March 11, 2020.
13. Mohammad Yosofvand*, Rabin Dhakal*, Hanna Moussa: *Comparison of Skin Absorbed Dose Coefficient Using Monte Carlo Methods MCNP6 Vs. Geant4*. 19th Annual Graduate Research Poster Competition. Texas Tech University, Lubbock, Tx. March 11, 2020.
14. Rasha, F., Ramalingam, L., Menikdiwela, K. R. R., Moussa, H., Moustaid-Moussa, N., The Obesity Society, "Role of Adipose-Renin-Angiotensin System Inhibition in Obesity and Breast Cancer Crosstalk," International, peer-reviewed/refereed, published in proceedings. (November 2019).
15. Mohammad Yosofvand*, Hanna Moussa. Workshop on how to run the "AdipoGauge" Software. College of Human Science, Nutrition Department, Texas Tech University. November 20, 2019.

16. Mohammad Yosofvand*, Hanna Moussa. Installation of "AdipoGauge" Software for Analysis of Biological Microscopic Images. College of Human Science, Nutrition Department, Texas Tech University. November 19, 2019.
17. Mohammad Yosofvand*, Hanna Moussa. (Zoom presentation). "AdipoGauge" Software manual for Analysis of Biological Microscopic Images. College of Human Science, Nutrition Department, Texas Tech University. November 15, 2019.
18. Mohammad Yosofvand*, Moussa, H. (Zoom presentation). Introduce the "AdipoGauge" Software for Analysis of Biological Microscopic Images. College of Human Science, Nutrition Department, Texas Tech University. October 1, 2019.
19. Mohammad Yosofvand*, Hanna Moussa. Zoom Presentation. manual and installation of the new imaging software using C++ for microscopic color recognition. College of Human Science, Nutrition Department, Texas Tech University. July 19, 2019.
20. Fahmida Akter Rasha, F., Arwa Aljawadi, Ramalingam, L., Hanna Moussa, Gollahon, L., Moustaid-Moussa, N. Protective Anti-inflammatory Effect of Eicosapentaenoic acid (EPA) in Obesity and Breast Cancer Crosstalk. American Institute for Cancer Research (AICR) 2019 Research Conference. Chapel Hill, NC. May 2019.
21. Mohammad Yosofvand*, Hanna Moussa. Workshop on Geant 4 "XVI Seminar on Software for Nuclear, subnuclear and applied physics". Alghero, Sardinia, Italy. May 26-30, 2019.
22. Mohammad Yosofvand*, Hanna Moussa. Zoom presentation. Introducing a new imaging software using C++ for microscopic color recognition. College of Human Science, Nutrition Department, Texas Tech University. May 17, 2019.
23. Mohammad Yosofvand*, Sanka Liyanage, Alan Mitchel Lovelace*, Hanna Moussa: Development of Medical Imaging Tools for Applications in Obesity and Cancer Research. 5th Annual Meeting on Obesity Research Cluster. Texas Tech University innovation hub at Research Park. May 9, 2019.
24. Al M Rashid*, Moussa, H. Updated and use of the micro-graphic Software. College of Human Science, Nutrition Department, Texas Tech University. October 30, 2018.
25. Curtis Hallman*, Hanna Moussa: Dose to Human Leg's Skin from Infinitive Beta Surface Source. Undergraduate Research Conference, Texas Tech University, Lubbock, Taxes, March 28-29, 2017.
26. Lawrence W. Townsend; Wouter C. DeWet; Fahad Zaman; Natalie A. McGirl; Lawrence H. Heilbronn; Hanna Moussa. Radiation Exposure Estimates for Deep Space Missions Revisited. 47th International Conference on Environmental Systems. July 20, 2017. Charleston, South Carolina, July 16-20th, 2017. Published in proceeding (July 15, 2017. ICES-2017-22).
27. Curtis Hallman*, Hanna Moussa. Dose to Human Leg's Skin from Infinitive Beta Surface Source. Undergraduate Research Conference, Center of Active Learning department, Texas Tech University, Lubbock, Taxes, April 28-29, 2017.
28. Curtis Hallman*; Hanna Moussa. Dose to human leg's skin from infinite beta surface source. 62nd Annual Meeting of the Radiation Research Society, Hawaii, Big Island, Waikoloa, October 16-19, 2016.

29. Al M Rashid*, Hanna Moussa. Radiation Dose Using a New Geometry of Women's Breast for Mammogram X-Ray Exposure. Obesity Research Cluster meeting, Texas Tech University. May 11, 2016.
30. Moussa, H. Modeling/Simulation of Dose to Human Organs from Low and High Exposure Radiation Using Monte Carlo Code (MCNP). Obesity Research Cluster meeting, Texas Tech University. May 11, 2016.
31. L.W. Townsend; J.A. Porter; W.C. de Wet; W.J. Smith; L.H. Heilbronn; H. M. Moussa: Extreme Solar Event of AD775: Potential Radiation Exposure to Crews in Deep Space. 66th International Astronautical Congress (IAC), Jerusalem, Israel, October 21-16, 2015.
32. Al M Rashid*, Kafil A Chowdhury*, Naima Moustaid-Moussa, Lauren Gollahon, and Hanna Moussa. Radiation Effects of Obesity-Associated Breast Cancer. 60th Annual Meeting of the Health Physics Society, Indianapolis, IN, July 12- 16, 2015.
33. Kafil A Chowdhury*, AL M. Rashid*, Hanna Moussa; Lawrence W Townsend: Dose to Water from Solar Particle Event (SPE). 60th Annual Meeting of the Health Physics Society, Indianapolis, IN, July 12- 16, 2015.
34. Hanna Moussa, Lawrence W. Townsend: Dose on Europa's Orbit at '0' degrees Due to Electron Spectra vs. Shield Thicknesses. 60th Annual Meeting of the Health Physics Society, Indianapolis, IN, July 12- 16, 2015.
35. Hanna Moussa, Lawrence W. Townsend: Dose on Europa's Orbit at '0' degrees Due to Proton Spectra vs. Shield Thicknesses. 59th Annual Meeting of the Health Physics Society, Baltimore, MD, July 13- 17, 2014.
36. Lawrence W. Townsend, Anne M. Adamczyk, Charles M. Werneth, Hanna M. Moussa, and Jeremy P. Townsend: Extreme Solar Particle Event Radiation on Exposure on Mars. American Nuclear Society (ANS) 2013 National Winter Meeting and Technology Expo. Washington D.C 10-14, 2013.
37. Moussa Hanna, and Townsend, L. Progress on Developing Methods to Forecast Radiation Doses from Solar Particle Events. 58th Annual Meeting of the Health Physics Society, Madison, Wisconsin. July 7-11, 2013.

Peer-Reviewed Conferences and presentation Before TTU

38. L.W. Townsend; A.M. Adamczyk; C.M. Werneth; H.M. Moussa, and J. P. Townsend: Estimates of Extreme Solar Particle Event Radiation Exposures on Mars. 12th ICRS/RPSD International Conference on Radiation Shielding and 17th Topical Meeting on Radiation Protection & Shielding Division of ANS. Nara, Japan, September 2-7, 2012.
39. H.M. Moussa; RP Manager; and KF Eckerman: Beta Dose to Skin as Function of Height. 57th Annual Meeting of the Health Physics Society, Sacramento, CA, July 22- 26, 2012.
40. Moussa, H.M.; and Mark, A. Melanson: Correction to the Effective Dose Published in ICRP 80. Health Physics Society Midyear Topical Meeting, Albuquerque, NM, January 24-27, 2010.
41. Moussa, H.M.; Charara, Y.M.; and Townsend, L.W.: Monte Carlo Simulations of Energy Losses by Space Protons in the CRaTER Detector. 59th International Astronautical Congress, Glasgow, Scotland, September 29 – October 3, 2008. (Proceedings on CD-ROM).

42. Charara, Y.; Townsend, L.W.; Moussa, H. M.; Hatcher, R.L.; Anderson, J. L., Dudney, C.; McKee, S.A.; McKinnis, P.; and Ottinger, K.: Calculated Energy Loss Spectra in CRaTER Detector for Selected Cosmic Ray Ions. 2007 IEEE Aerospace Conference, Big Sky, MT, March 3-10, 2007. (Proceedings on CD-ROM).

43. Moussa, H. M.; Eckerman K. F.; and Townsend, L. W.: Effect of Dust Particle Size on Absorbed Fraction in ET1. 2007 HPS Midyear Topical Meeting, Knoxville, TN, January 21-24, 2007.

44. Youssef Sharara, L.W. Townsend, and Hanna Moussa: LET Spectra of High Energy Proton Beam on A-150: Model Predictions for the CRaTER Detector. International Conference on Environmental System, July 2006, Norfolk, VA, USA Session: Radiation Issue for Space Flight 11.

45. Moussa, H. M.; Eckerman K. F.; and Townsend, L. W.: Energy-Lost Distribution in a Thin Layer of Tissue. 2006 American Radiation Safety Conference & Exposition (51st Annual Meeting of the Health Physics Society), Providence, RI, June 25-29, 2006.

46. Townsend, L.W.; Moussa, H. M., and Charara, Y.: Characterization of the Lunar Radiation Environment Using CRaTER Detector. 2006 IEEE Aerospace Conference, Big Sky, MT, March 4-11, 2006. Proceeding on CD-ROM.

47. Campbell, C. E.; Miller, T. M.; Nichols, T. F; Edwards, J. R.; Moussa, H. M.; and Townsend, L. W.: Sensitivity of Solar Energetic Particle Event Doses to Spectral Hardness. 35th International Conference on Environmental Systems (ICES), Rome, Italy, July 11-14, 2005. SAE Technical Paper No. 2005-01-2830. Proceeding on CD ROM.

48. Townsend, L. W.; Stephens, D. L.; Hoff, J. L.; Braley, G. S.; and Moussa, H. M.: Worst Case Solar Energetic Events for Deep Space Missions. 2001 International Conference on Environmental Systems, Orlando, FL, July 9-12, 2001. SAE Paper No. 011CES-292.

49. Moussa, H. M.; Eckerman K. F.; and Townsend, L. W.: Self-Absorption effects on Electron Absorbed Fraction in the Anterior Nose. 13th Symposium on Microdosimetry, Stresa (Lago Maggiore), Italy, May 27 – June 1, 2001.

50. Moussa, H. M.; Eckerman K. F.; and Townsend, L. W.: Effect of the Anterior Nose Size on the Electron Absorbed Fraction. 2000 ANS Winter Meeting, Washington, DC, November 12-16, 2000. Transactions of the American Nuclear Society Vol. 83, pp. 511-513.

51. Moussa, H. M.; Eckerman K. F.; and Townsend, L. W.: The Effect of the Nasal Vestibule (ET1) Sizes and Shape on the Electron Absorbed Fraction. 45th Annual Meeting of the Health Physics Society, Denver, Co, June 25-June 29, 2000. Health Physics. Vol. 78, No 6: S116, 2000.

52. Moussa, H. M.; Eckerman K. F.; and Townsend, L. W.: Electron Absorbed Fractions Based on a New Model of the Extrathoracic Airway. 47th Annual Meeting of the Radiation Research Society, Albuquerque, NM, April 29-May 3, 2000. Radiation Research Society Program and Abstract Book: Abstract P56, page 80, May 2000.

53. Moussa, H. M.; Townsend, L. W.; and Miller, L. F.: Manual Calibration of Liquid Scintillation Counter using Channels Ratio Technique. 1999 ANS Winter Meeting, Long Beach, CA, November 14-18, 1999. Transactions of the American Nuclear Society Vol. 81, pp. 42-43.

54. Moussa, H. M.; Eckerman K. F.; and Townsend, L. W.: Estimation of Electron Absorbed Fraction in the Extrathoracic Airways. 44th Annual Meeting of the Health Physics Society, Philadelphia, PA, June 27-July 1, 1999. Health Physics. Vol. 76, No 3: S158, 1999.
55. Moussa, H. M.; Townsend, L. W.; and Miller, L. F.: Measuring Stopping Power in Air Using Alpha Spectrometer. 1998 ANS Winter Meeting, Washington, DC, November 15-19, 1998. Transactions of the American Nuclear Society Vol. 79, pp. 38-39.
56. Moussa, H. M.; Townsend, L. W.; and Miller, L. F.: Determination of Radon Daughter Concentrations Using Air Sampling Technique. 1998 ANS Annual Meeting, Nashville, TN, June 7-11, 1998. Transactions of the American Nuclear Society Vol. 78, pp. 39-41.
57. Moussa, H. M.; Miller, L. F.: Estimation of Uncertainty in Multigroup Diffusion Theory Results Using Functional Analysis. 1997 ANS Winter Meeting, Albuquerque, NM, November 16-20, 1997. Transactions of the American Nuclear Society Vol. 77, pp. 203.

Invited talk and workshop (International)

58. Mohammad Yosofvand*, Hanna Moussa. Installation of "AdipoGauge" Analysis of Biological Microscopic Images. Institute of Biomedical Sciences, Department of Physiology and Biophysics, University of Sao Paulo, April 11, 2023.
59. Mohammad Yosofvand*, Hanna Moussa. Workshop on Geant 4 "XVI Seminar on Software for Nuclear, subnuclear and applied physics". Alghero, Sardinia, Italy. May 26-30, 2019.
60. Hanna Moussa: Application of Monte Carlo (MCNP) in dosimetry. Sidra Medical and Research Center. Doha, Qatar. March 11, 2019.
61. Hanna Moussa: Application of Monte Carlo (MCNP) in dosimetry. Zhejiang Chinese Medical University, China. September 28, 2018.
62. Hanna Moussa: Introduction to Radiation and Monte Carlo Simulation. Centro Universitario Dinamica das Catrarstas (UDC), Foz do lguacu, Brazil. March 16-17, 2017.
63. Hanna Moussa: Simulation. Solar Particle Event (SPE) Forecasting Using Kernel Regression Technique (KRT). Centro Universitario Dinamica das Catrarstas (UDC), Foz do lguacu, Brazil. March 16-17, 2017.
64. Moussa, H. M: Dose to water from Proton Solar particle Event (SPE). Mechanical Engineering Department, University of Peradeniya - Sri Lanka, August 13, 2015.

Invited talk (Domestic)

65. Lovelace, M.*, Moussa, H. Installation and use of Cellular growth analyzer software. presentation. College of Human Science, Nutrition Department, Texas Tech University. April 6, 2017.
66. Lovelace, M.*, Moussa, H. Introducing Cellular growth analyzer software. presentation. College of Human Science, Nutrition Department, Texas Tech University. December 2, 2017.
67. Al M Rashid*, Hanna Moussa. Development of a New Software for micro-graphic software. Human Science, Nutrition Department, TTU. April 12, 2017.

68. Moussa, H. M: Solar Particle Event (SPE) Forecasting Using Regression Techniques. 44th International Conference in Environmental System (ICES), Tucson, Arizona, July 13-17, 2014. Published in proceeding (July 15, 2014. ICES-2014-109).

Invited talk before TTU

69. Moussa, H. M: Dust Particle Size Effect on Absorbed Fractions Value in the Anterior Nose. University of Ontario Institute of Technology, Nuclear engineering department, May 1, 2008.
70. Moussa, H.M: Dust Particle Size Effects on Absorbed Fraction Values in the Anterior Nose. Nuclear and Radiological Engineering Department, Georgia Institute of Technology, Atlanta Georgia, April 16, 2007.
71. Moussa, H. M: Application of MCNPX Approaches to Space Radiation. National Institute of Standards & Technology (NIST), Gaithersburg, MD, October 27, 2006.
72. Moussa, H. M: Dust Particle Size Effect on Absorbed Fractions Value of ICRP Nose Model. Idaho State University, Physics Department, May 9, 2006.