

Curriculum Vita

Personal Information

Keyhandokht Karimi-Shahri

Assistant Professor of Physics

Department of Physics, Faculty of Science, University of Birjand,
97175/615, Iran

Research Interests: Computational Dosimetry, Radiation Protection
Dosimetry, Radiation Dosimetry and Anatomical Modeling for Various
Applications in Health Physics

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Education

PhD Physics, Ferdowsi University of Mashhad, Iran

Thesis: **Optimal Algorithm to Estimate the Effective Dose in External Exposure**

Supervisors:

Dr.Laleh Rafat- Motavalli

Prof.Hashem Miri-Hakimabad

MSc Physics, Ferdowsi University of Mashhad, Iran

Thesis: **Calculation of Fluence to Absorbed Dose Conversion Coefficients for Mono
Energetic Neutron below 20 MeV on Modification ORNL Phantom**

Supervisor:

Prof.Hashem Miri-Hakimabad

BSc Physics, Hakim Sabzevari University, Sabzevar, Iran

Honor

Ranked 2th among all Nuclear students of the department at the end of MSc period

2010 Ranked as a **Brilliant Talent Student** in Ferdowsi University of Mashhad

2023 awarded **woman research award** from 10th Edition of International YOUNG SCIENTIST AWARDS.

Academic Supervision Activities

1. **2022-** University of Birjand, Department of Physics, Birjan, Iran
Research Supervisor
"A Monte Carlo study of dose enhancement by gold, hafnium, and iron nanoparticles in radiotherapy with proton and carbon beam"
2. **2022-2021** University of Birjand, Department of Physics, Birjan, Iran
Research Supervisor
"Calculation of the organ absorbed doses and the whole body effective dose from gamma source in industrial radiography accidents"
3. **2021-2022** University of Neyshabur, Department of Physics, Neyshabur, Iran
Research Advisor
"Calculation of dose distribution due to the Iodine absorption by the thyroid"
4. **2021-2022** Semnan University of Medical Sciences Faculty of Medicine,
Department of Medical Physics, Semnan, Iran
Research Supervisor
"Estimation of the neutron conversion coefficients for use in occupational protection against external radiation on the weight percentile by MCNPX Monte Carlo code"
5. **2017-2021** University of Birjand, Department of Physics, Birjan, Iran
Research Supervisor
"Study on the Role of Hip Prosthesis in Production of Electron and Neutron Contamination in Radiotherapy with a 18MV Varian LINAC"
6. **2018-2019** University of Birjand, Department of Physics, Birjan, Iran
Research Supervisor
"Physical and Dosimetric Characteristics of Photon Beams from a Flattening Filter Free Linear Accelerator by Monte Carlo Simulation"
7. **2017-2019** University of Birjand, Department of Physics, Birjan, Iran
Research Supervisor
"Personal Monitoring for Am-Be Source by Portable shield"

8. **2016- 2017** University of Birjand, Department of Physics, Birjan, Iran
Research Advisor
“Design and study of cherenkov camera constraction(CVC) by Monte Carlo simulations”
9. **2015-2016** University of Birjand, Department of Physics, Birjan, Iran
Research Advisor
“The Calculation of Different Weight Percentile Groups Influence on the Effective Dose in Occupational Exposure”
10. **2015 -2016** University of Birjand, Department of Physics, Birjand, Iran
Research Advisor
“Study and calculation of Walking Phantom Effects on received doses in Occupational Exposure”.
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Professional Experience

Teach the General Physics, Modern Physics, Quantum Mechanic, Radioisotopes and Their Application, Nuclear Physics, History and philosophy of physics, Computational physics, Radiation and Detection Measurements, Special Topics1&2, The Physics of Radiation Therapy, and Monte Carlo Techniques courses,
Teaching in general Physics Lab

Computer Skills

Programming in MCNPX, Fortran 90 & 77, MATLAB, Monte Carlo methods
Familiar with 3D-Doctor and Rhinoceros software, Python

List of Publications

1. Mohammadi, Najmeh, and Keyhandokht Karimi-Shahri. **"Predicting Radial Dose Function of LDR Brachytherapy Sources in the Calcified Soft Tissues through Monte Carlo Simulation."** Biomedical Physics & Engineering Express 2025,11(4),1
2. Keyhandokht Karimi-Shahri, Yasaman Rezaei-Moghaddam, Parisa Akhlaghi, Najmeh Mohammadi, Atiyeh Ebarahimi- Khankook **"A Comprehensive Study of the Exposure Buildup Factor in some Polymer Composites for Point Isotropic Source, including the Effect of Bremsstrahlung"** Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms 2024,557, 165552.

3. Keyhandokht Karimi-Shahri, Mohammad Allah Shirzad, **"Estimating the effective dose from exposures in industrial radiography accidents"** Iranian Journal of Radiation Safety and Measurement 2024, 13 (1), 35-45.
4. Zahra Mehrabankhoo, Marzyieh Behmadi, Keyhandokht Karimi-Shahri. " **Rapid Assessment of Dose for Large-Scale Individual: a Feasibility Study**" Radioprotection2024;59;19-25.
5. Samira Razghandi, Keyhandokht Karimi-Shahri, Mohammad Mahdi Firoozabadi," **Dosimetric Effects of Different Hip Prosthesis Materials during Pelvic Radiotherapy Using High Energy Photons**" Radiation Physics and Chemistry 2023;212.
6. Parisa Akhlaghi. Najmeh Mohammadi, Keyhandokht Karimi Shahri, Atiyeh Ebrahimi Khankook, Yasaman Rezaei Moghaddam.' **Efficiency of Tungsten-Polymer Composite Shields on the Fetal Dose Reduction in Chest CT Scans** " Medical Engineering and Physics2023;118
7. Samira Razghandi, Keyhandokht Karimi-Shahri, Mohammad Mahdi Firoozabadi,"**Evaluation of neutron spectra and dose equivalent from a Varian 2100C/D Medical Linear Accelerator: Monte Carlo simulation and a literature review**", Radioprotection 2021; 56(2):93-101.
8. Keyhandokht Karimi-Shahri, Gholam Hossein Izadi-Vasafi, Mohammad Mehdi Firoozabadi Mahdi Ghorbani ," **Dosimetric effects of composition, location and size of tissue heterogeneities on ²⁵²Cf neutron brachytherapy**", Applied Radiation and Isotopes 2021;171:1-8.
9. Karimi Shahri K, Rafat Motavalli L, Miri Hakimabad , **"On the Effective Dose Estimation Based on Two-Dosimeter Algorithm: A Method to Reduce Uncertainty"**, Romanian Journal of Physics 2020;65,705
10. Samira Razghandi, Keyhandokht Karimi Shahri, Mohammad Mahdi Firoozabadi, **"Investigations of parameters affecting the photon energy spectra of an 18 MV Varian 2100C/D linear accelerator"**, Iranian Journal of Radiation Safety and Measurement 2020, 8 (5), 45-53.
11. Karimi Shahri K, **"Estimation of the Effective Dose of Radiation Workers: Optimization Based on the Weight Percentile"**, Health Physics 2020,119(3),273-279
12. P Akhlaghi, A Ebrahimi Khankook, A Vejdani Noghreiyani, K Karimi Shahri **"Evaluation of polyurethane composite shields effect on reducing the risk of cataract induction at head CT scan"**, Iranian Journal of Radiation Safety and Measurement 2019, 7 (4), 41-52.

13. Karimi Shahri K, Rafat Motavalli L, Miri Hakimabad H, Liye Liu, Junli Li, "Effects of computational phantoms on the effective dose and two-dosimeter algorithm for external photon beams", Applied Radiation and Isotopes 2016. ; 115:155-164
 14. Firoozabadi M. M., Izadi Vasafi Gh., karimi-sh K., Ghorbani M. "A Monte Carlo Study on the Effect of Various Neutron Capturers on Dose Distribution in Brachytherapy with ^{252}Cf Source" Journal of Biomedical Physics Engineering 2016;7:13-20.
 15. Nafise Araghian, Keyhandokht Karimi-Shahri,Atiyeh Ebrahimi-Khankook "A comparative study of anatomical models for estimating the radiation risk" Journal of Radiobiology 2015;2(1):3-10.
 16. K.Karimi Shahri, L.Rafat Motavali, H.Miri Hakimabad, " Study of size, type and the kerma approximation for thermoluminescent dosimetry-" Journal of Radioanalytical and Nuclear Chemistry 2013. ; 298(2):813-819
 17. K.Karimi Shahri, L.Rafat Motavali, H.Miri Hakimabad, "Can the same dose data be estimated from phantoms with different anatomies" Radioprotection 2013. ;48(4):527-544.
 18. K.Karimi Shahri, L.Rafat Motavali, H.Miri Hakimabad, "Finding a suitable shield for mixed neutron and photon fields based on an Am-Be source". Journal of Radioanalytical and Nuclear Chemistry 2013. ;298(1):233-239.
 19. K.Karimi Shahri, H.Miri Hakimabad, L.Rafat Motavali" Different Effective Dose Conversion Coefficients for Monoenergetic Neutron Fluence from 10^{-9} MeV to 20 MeV - A Methodological Comparative Study-" Radioprotection 2012. ;47(2):1-14
 20. K. Karimi Shahri, L. Rafat Motavalli, H. Miri Hakimabad," Neutrons Applications in Cancer Treatment and in Specific Diagnostics", Hellenic Journal of Nuclear Medicine 2011; 14(2):70-74
 21. H. Miri Hakimabad, L.Rafat Motavali, K.Karimi Shahri" Activation Rate Uniformity in a Bilateral IVNAA Facility for Two Anthropomorphic Phantoms" Nuclear Technology& Radiation Protection 2010;25:69-77
 22. H. Miri Hakimabad, L.Rafat Motavali, K.Karimi Shahri " Assessment of Neutron Fluence to Absorbed Dose Conversion Coefficients in ORNL Analytical Adult Phantom" Journal of Radiological Protection 2009; 29 : 51–60.
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Seminars or Conferences Presented

1. K.Karimi Shahri, H.Miri Hakimabad, L.Rafat Motavalli " Which Factors Affect On Estimation Of Absorbed Dose And Effective Dose?" *14th international congress of nuclear medicine, Mashhad, Iran, 4-6 November 2010.*
2. E. Hosenian, K. Karimi Shahri, H.Miri Hakimabad, L.Rafat Motavalli "Hybrid phantom approach for radiation dosimetry applications", *14th international congress of nuclear medicine, Mashhad, Iran, 4-6 November 2010*
3. K.Karimi Shahri, H.Miri Hakimabad, L.Rafat Motavalli " Estimation of Absorbed and Effective Doses on the Different Body Organs from Monoenergetic Neutron Source (10⁻⁹MeV-20MeV) Based on the ORNL Analytical Adult Phantom" *The First Science Research Festival of Radiation Students, Shiraz, Iran, 7-10 November 2010.*
4. K.Karimi Shahri, L.Rafat Motavalli, H.Miri Hakimabad "Which Body Model Is More Suitable for Dosimetry Calculations?" *1st MEFOMP International Conference of Medical physics, Shiraz, Iran, 26-28 November 2011.*
5. K.Karimi Shahri, L.Rafat Motavalli, H.Miri Hakimabad "Review on Fast Neutron Therapy" *1st MEFOMP International Conference of Medical physics, Shiraz, Iran, 26-28 November 2011.*
6. E.Hosenian, K.Karimi Shahri, L.Rafat Motavalli, H.Miri Hakimabad " Hybrid Phantom Applications to Nuclear Medicine " *1st MEFOMP International Conference of Medical physics, Shiraz, Iran, 26-28 November 2011.*
7. K.Karimi Shahri, L.Rafat Motavalli, H.Miri Hakimabad " Investigation of Different Options to Establish the Electron Equilibrium in Several Thermoluminescent Dosimeters ". *5th International and 17th Iranian Congress of Nuclear Medicine, Shiraz, Iran, 1-3 May 2013*
8. K.Karimi Shahri, L.Rafat Motavalli, H.Miri Hakimabad " Optimal Algorithm to Estimate the Effective Dose in External Exposure " *20th Iranian Annual Physics Conference, Mashhad, Iran, Aug 2015.*
9. K.Karimi Shahri, " Investigation of Different Race Effects on the Organ Absorbed Dose and the Effective Dose in External Exposure " *21th Iranian Annual Physics Conference, Shiraz, Iran, Aug 2016.*
10. K.Karimi Shahri, " Investigation of conditions for electron equilibrium establishing in thermoluminescent dosimeter " *2nd International Conference on Physics, Brussels, Belgium, Aug 2017.*

11. K.Karimi Shahri," Evaluation of the Effective Dose Received by the Operator of the Soil Neutron Moisture Meter " **24th Iranian Nuclear physics Conference, Esfahan, Iran, Feb 2018.**
12. K.Karimi Shahri," *An Easy Method to Create the Better Representative of Patients with Various Body Morphologies*".**12th Iranian Congress of Medical Physics, Tehran, Iran, July 2018**
13. S.Razghandi; K.Karimi Shahri; MM. Firoozabadi," Determination of Initial Electron Beam Parameters of 18MV Varian 2100C/D Linear Accelerator Using MCNPX". **25th Iranian Nuclear physics Conference, Bushehr, Iran, Feb 2019.**
14. K.Karimi Shahri; MM. Firoozabadi; O.Jafaei, " Study of Cherenkov Radiation in the Tehran Research Reactor(TRR) Using the MCNPX Monte Carlo Code for Feasibility of the Cherenkov Camera Construction". **24th Iranian Annual Physics Conference, Tabriz, Iran, Aug 2019.**
15. S.Razghandi; K.Karimi Shahri; MM. Firoozabadi," Investigation of the source-surface distance parameter effect on the produced neutrons in linear accelerator ".**24th Iranian Annual Physics Conference, Tabriz, Iran, Aug 2019.**
16. P.Bidokhti; K.Karimi Shahri, " Study of the uniformity of the photon flux distribution for the flattening filter free medical linear accelerator".**25th Iranian Annual Physics Conference, Kermanshah, Iran, Aug 2020**
17. K.Karimi Shahri "Simulation and Validation of a 6 MV Elekta Compact Accelerator Head", **30th National Nuclear Conference and 1th International Conference on Nuclear Science and Technology, Esfahan, 4-6 May2024**