

Personal Resume

Personal Information

Name and Surname: Hossein Khosravi
Employment Status: Formal
Educational Department: Radiology
Academic Rank: Associate Professor
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Educational Information

PhD: Medical Physics

Thesis Title: The Effect of Gold Nanoparticles on Absorbed Dose Distribution in Combined External and Internal Radiation Therapy of the Prostate Area in a Pelvic Phantom Using Experimental Dosimetry Methods and Monte Carlo Simulation
Graduated: 2015

Master's Degree: Medical Physics

Thesis Title: Design and Construction of Adaptive Templates and Evaluation of Their Capabilities in Reducing the Dose Received by Healthy Tissues
Graduated in: 2003

Bachelor's degree: Applied Physics

Graduated in: 1999

Executive Records:

- Launching a Master's degree in Medical Physics at Hamadan University of Medical Sciences
- Launching a Center for Dosimetry and Quality Control of Radiodiagnostic Devices at Hamadan University of Medical Sciences
- Head of Health Physics at the Center for Dosimetry and Quality Control of Radiodiagnostic Devices at Hamadan University of Medical Sciences
- Administrative and Financial Assistant at Hamadan School of Paramedical Sciences
- Physicist of the Radiotherapy Department of the Comprehensive Cancer Center of Besat Hospital of Hamadan and Mahdih Center of Hamadan
- Secretary of the Strategic Committee of Hamadan School of Paramedical Sciences
- Member of the Educational and Research Council of Hamadan School of Paramedical Sciences
- Member of the Evaluation Committee of the Education Studies and Development Unit of the School of Paramedical Sciences at Hamadan University of Medical Sciences
- Assistant Professor of Medical Research at Shahid Chamran Hospital Health Research Institute in Tehran
- Research Director of the Health and Treatment Department of the Defense Industries Organization
- Researcher and Expert in Electro-Optical Systems at the Aerospace Organization
- Researcher and Expert in the Medical Imaging Systems Department of the Medical Science and Technology Research Center
- Physicist of the Radiotherapy Department of Imam Khomeini Hospital, Tehran, Shahid Hospital Chamran, Tehran, Pars Hospital, Tehran, and Kamrani Charity Foundation

Membership in local, provincial, national, and international associations and societies:

Associate Member of the Iranian Society of Medical Physics

Associate Member of the Iranian Society of Physics

Associate Member of the Iranian Society of Radiation Protection

Member of the Iranian Nuclear Society

Member of the Research Council of the Health and Treatment Department of the Defense Industries Organization

Member of the Editorial Board of the Shahid Chamran Hospital Journal, Tehran

Member of the Editorial Board of the Avicenna Journal of Care and Health in Operating Room (AJCHOR)

Educational Records:

Teaching Records:

Providing training courses: Optical Design, AutoCAD, Radiation Oncology and Solution for Conformal Therapy, COSMOSMOTION Dynamic Simulator Software, Basics and Principles of Imaging Systems, Imaging and Radiosurgery Systems, Documenting Scientific Documents, Quality Assurance Workshop in Radiotherapy, Introduction to Geant4 Software Package, Environmental Health and Safety, Participation in the Iran Nano Forum Course, Project Management, Project Risk Management, Configuration Management, Participation in Patent Registration Workshop, Strengthening the Program of Innovative Nanotechnology Designs, Quality Assurance for Linear Accelerators in the Medical Field, Quality Control of All Medical Imaging Devices, Quality Control of Radiology Equipment, Advanced Radiation Protection Course, Ethics in Education, Lesson Plans and Methods of Basic Teaching Techniques, Knowledge Translation and Transfer, University Rules and Regulations, Principles of Working with Laboratory Animals, Introduction to Patent Registration, Meta-Analysis and Systematic Review, Ethics in Biomedical Research, End Note Resource Management, Introduction to Adobe Connect Software, Content Preparation Training for the Arman system, familiarization with sound on PowerPoint, educational research, lesson plans in virtual education, participation in practical quality assurance workshops related to linear accelerators in the medical field

Theses:

- 1-Methods for improving family health based on hygiene measures of traditional Iranian medicine. Hesameddin Hosseini Tavasol. (2018, substitute for Khedmat, supervisor)
- 2-Investigation of the effect of gold nanoparticles on increasing the absorbed dose in the treatment of thyroid cancer with ¹³¹I. Maryam Mehri. (2018, senior, supervisor)
- 3-Investigation of the effect of gold nanoparticles dispersed in a tissue equivalent bolus on the absorbed dose distribution of the skin surface in radiotherapy of patients with breast cancer using Monte Carlo simulation. Maryam Yafthian. (2018, senior, supervisor)
- 4-Investigation of the effect of gold nanoparticles on increasing the absorbed dose in external beam radiotherapy for breast cancer using the Monte Carlo method. Faezeh Teymurian. (2018, Senior, Supervisor)
- 5-Investigation and evaluation of the dose received by the eyes and thyroid of the medical staff in the ERCP process using a fluoroscopy device (Supervisor)
- 6-Investigation and evaluation of the absorbed dose of the thyroid in chest CT scans in children under 10 years of age (Supervisor)
- 7-Investigation of the effect of using different image reconstruction kernels on the CT number of different brain tissues (Supervisor)
- 8-Investigation of the consequences of unnecessary CT scan requests in Besat Hospital in Hamadan (Supervisor)
- 9-Investigation of the exposure of staff working in non-specialized inpatient wards of the Cardiovascular Department to gamma radiation in Farshchian Cardiovascular Hospital in Hamadan in 1400 (Consulting Professor)
- 10-Investigation of the effect of green coffee hydroalcoholic extract on X-ray-induced lung injury in Rat (Advisor)
- 11-Synthesis and characterization of graphene-bismuth nanocomposites for use as radiological shields (Advisor)
- 12-Investigation of factors affecting the quality of internship and strategies for its improvement from the perspective of medical students at Hamadan University of Medical Sciences (Supervisor)
- 13- Investigation and evaluation of the dose received by the eyes and thyroid of the employees of the nuclear medicine department of Farshchian Hospital, Hamadan (Supervisor)
- 14-Comparison of the level of the element in the blood serum of healthy women and women with breast cancer referred to the Mahdiah Radiotherapy Center, Hamadan (Supervisor)
- 15-The effect of gold nanoparticles on the expression of some apoptotic genes and the state of oxidative stress in the human colon cancer cell line HCT-116 (Advisor)
- 16-Investigation of the effect of hydroalcoholic extract of sumac on lung damage caused by X-rays in rats (Advisor)
- 17-Investigation of the relationship between skin surface absorbed dose and radiation index in Chest X-ray (Consultant Professor)

Research Background

Research Interests:

- Treatment design with various software in radiotherapy
- Commissioning of linear accelerator devices in radiotherapy
- Dosimetry and quality control of diagnostic radiation devices
- Design and calculations related to shielding in radiology, nuclear medicine and radiotherapy centers
- Proficient in design and simulation software such as: Geant4, MCNPX, ZEMAX and COMSOL
- Proficient in C++ and Python programming languages

Published Books:

- Polymer gel dosimetry and its applications: radiotherapy, sensitivity and radiation protection, Hamadan University of Medical Sciences, 2019

Research Projects:

- Design and construction of student microscope, optical training kit, optical parts of operating room microscope and parts and lenses for diagnosis and treatment in ophthalmology (Sharif University of Technology Jihad)
- Design and construction of adaptive molds and evaluation of their capabilities in reducing patient dose (Tehran University of Medical Sciences)
- Design and implementation of an advanced safety action plan against high-power lasers (Iran Aerospace Organization)
- Design, construction and implementation of a clinical system for measuring bone density using the QCT method (Tehran University of Medical Sciences)
- Dosimetric gel polymer with the presence of gold nanoparticles in the prostate phantom (Tarbiat Modares University)
- Investigation of the effect of nanoparticles in external radiotherapy using Monte Carlo simulation (Hamedan University of Medical Sciences)
- Investigation of the sensitization effect of gold nanoparticles in radiation therapy for cancer (Hamedan University of Medical Sciences)
- Design of non-lead shields with the ability to High radiation protection for X-ray photons in the diagnostic radiology area using Monte Carlo simulation (Hamedan University of Medical Sciences)
- Comparison of absorbed dose at different points of Schneider head phantom in two methods of flash radiotherapy and conventional radiotherapy based on Monte Carlo calculations (Hamedan University of Medical Sciences)
- Investigation of the effectiveness of radiotherapy and photodynamic therapy methods of gold nanoclusters carrying levulinic acid on K562 cells (Hamedan University of Medical Sciences)
- Investigation of the role of nano selenium radiation protection on the reduction of lung tissue damage following high-dose X-ray irradiation in a male rat model (Hamedan University of Medical Sciences)
- Investigation of the combined effects of bismuth selenide nanoparticles and radiation therapy on HCT-116 cells in vitro (Hamedan University of Medical Sciences)
- Investigation of the role of nano curcumin radiation protection on the reduction of tissue damage and fibrosis in liver and kidney tissue in a rat model Male (Hamedan University of Medical Sciences)
- Investigation and evaluation of new methods of teaching patients for radiation protection in the nuclear medicine department of Farshchian Hospital, Hamedan (Hamedan University of Medical Sciences)
- Investigation of the correspondence of findings of plain chest radiography, lung CT scan and molecular diagnostic test of patients with COVID_19 in Shahid Beheshti Hospital, Hamedan (Hamedan University of Medical Sciences)
- Investigation of the protective effect of field horsetail extract on tissue damage and fibrosis rate in kidney and liver tissue following radiotherapy in male rat model (Hamedan University of Medical Sciences)
- Evaluation of the status of protection against ionizing radiation in diagnostic radiology departments of hospitals of Hamedan University of Medical Sciences (Hamedan University of Medical Sciences)
- Design and calculations related to shielding in radiology rooms, CT scan, fluoroscopy, etc. (Quality Control Company of A. P. University of Hamedan)
- Design and calculations related to shielding for linear accelerators (Quality Control Company of University of A. P. Hamadan)
- Design and calculations related to shielding in nuclear medicine systems (A. P. Hamadan University Quality Control Company)
- Lead plating of radiology, radiotherapy, nuclear medicine rooms, etc. (A. P. Hamadan University Quality Control Company)
- Quality inspection of radiation protection equipment and estimation of lead equivalent thickness (A. P. Hamadan University Quality Control Company)

□ Inspection of radiation work centers and determination of radiation leakage in the workplace (A. P. Hamadan University Quality Control Company)

Published articles:

1. H Khosravi. Effects of ray lasers on the eye and the skin and provide a safety program in front of it. 2nd Air and Space Conference. 2002.
2. M Allahverdi, H Khosravi, H Gharaati, HR Khosravi. Evaluation and comparison between dose measurement under conformal block and calculation with Plato treatment planning system and proposing a correction algorithm. IRANIAN JOURNAL OF MEDICAL PHYSICS, 2003; 1 (2): 15-22.
3. H Khosravi. Detection of the optical wavefront using the Talbot effect. Photonics Conference, 2004.
4. H Khosravi. Bifocal optical system designed to track distant targets using ZEMAX software. 7th Iranian Aerospace Society Conference, 2007.
5. HR Khosravi, S Sarkar, H Khosravi, MR Deevband. Monte Carlo Simulations for I-131 Imaging Using a Variance Reduction Technique. In World Congress on Medical Physics and Biomedical Engineering, 2007; 856-858.
6. H Khosravi, HR Khosravi. Establishment of the National Diagnostic Guidance Levels: An Important National Project. 6th Scientific Congress of the Iranian Imaging Association, 2008.
7. H Khosravi, D Hashemi. Feasibility, design and construction of an optical system for laser proximity fuse. The First National Core ground combat, 2008.
8. H Khosravi, D Hashemi. A new optical system designed to track a star. Iranian National Conference of Optics and Laser Engineering, 2009.
9. Khosravi HR, Sarkar S, Khosravi H, Deevband MR. Monte Carlo Simulations for I-131 Imaging Using a Variance Reduction Technique. In World Congress on Medical Physics and Biomedical Engineering, September 7-12, 2009, Munich, Germany: Vol. 4/25 Image Processing, Biosignal Processing, Modeling and Simulation, Biomechanics 2010 (pp. 856-858). Berlin, Heidelberg: Springer Berlin Heidelberg.
10. H Khosravi, M Moradzadeh. The lightning discharge path, induced by the laser. Scientific Journal of Aerospace, 2010.
11. H Khosravi, M Shahbazi, H Karami. Introduction to functional mechanisms of laser proximity fuses and their design requirements for countering air targets. First National Congress of the necessity of air weapons in future conflicts, Imam Hossein University, Tehran, 2013.
12. H Khosravi, F Rahmani. Effect of gold nanoparticles size on increasing the absorbed dose in external beam radiotherapy using Monte Carlo simulation. 15th Conference on Nanotechnology, TMU, Tehran, 2014.
13. H Khosravi, B Hashemi, SR Mahdavi, P Hejazi. Effect of gold nanoparticles on distribution of absorbed dose in internal (Ir-192) and external (18 MV) radiotherapy of the prostate pelvic phantom using gel dosimetry and Monte Carlo simulation. 11th Iranian Conference of Medical Physics, 2014.
14. H Khosravi, B Hashemi, SR Mahdavi, P Hejazi. Target dose enhancement factor alterations related to interaction between the photon beam energy and gold nanoparticles' size in external radiotherapy: Using Monte Carlo method. Koomeh, 2015; 1(57): 255-261.
15. H Khosravi, B Hashemi, SR Mahdavi, P Hejazi. Effect of gold nanoparticles on the prostate dose distribution under Ir-192 internal and 18 MV external radiotherapy procedures using the gel dosimetry and Monte Carlo method. Journal of biomedical physics & engineering, 2015; 5(1): 3-14.
16. H Khosravi, AEbadi. Assessment of the hazards of high power lasers on eyes and suggestion of a safety program. Third Congress of laser application in medicine. 2016, Tehran, Iran.
17. H Khosravi, AEbadi. The feasibility of designing and building anti-sensor of laser. Third Congress of laser application in medicine. 2016, Tehran, Iran.
18. H Khosravi, AMahdavi, F Rahmani, A Ebadi. The Impact of Nano-Sized Gold Particles on the Target Dose Enhancement Based on Photon Beams Using by Monte Carlo Method. Nanomedicine Research Journal, 2016; 1 (2), 84-89.
19. H Khosravi, F Rahmani, B Hashemi. Gel dosimetry: The effect of gold nanoparticles on the dose enhancement in the external radiation therapy. Nanomedicine Research Journal, 2016; 1 (1), 31-38.
20. H Khosravi, B Hashemi, F Rahmani, AEbadi. Investigation of the gold nanoparticles effects on the prostate dose distribution in brachytherapy: gel dosimetry and Monte Carlo method. Journal of contemporary brachytherapy, 2016; 8 (5), 422.
21. S Farahani, E Gorji, R Rahnamafar, S Fazli, H Khosravi, et al. Enhanced radiotherapy by novel class of radiosensitizers based on Bismuth and Gadolinium nanoparticles. Radiotherapy and Oncology, 2017; 123, S963-S964.

22. H Khosravi, B Hashemi, SR Mahdavi. Investigation of the dose enhancement effect due to gold nanoparticles at 18 MV radiotherapy using MAGIC-f and Monte Carlo methods Thoraco-Lumbar spinal cord fMRI in 3T.... Iranian Journal of Medical Physics 15 (Special Issue-12th. Iranian Congress...2018.
23. H Khosravi, B Hashemi. Effect of gold nanoparticles on the dose enhancement at 18 MV radiotherapy practice based on the MAGIC-f gel and Monte Carlo dosimetry methods. Nanomedicine Journal. 2019, 6(1):67-73.
24. H Khosravi, K Ghazikhanlousani, A Rahimi. Use of gold nanoparticles in MAGIC-f gels to 18 MeV pho