

Marziyeh Behmadi

Assistant Professor

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Personal

Born on January 16th, 1985 in Ferdos, Iran; Citizen of Iran

Affiliation

Medical Physics Department, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Education

- ❖ Ph.D. of Medical Physics (Mashhad University of Medical Sciences)
Mashhad, Iran Feb 2013- present
Thesis Title: Dose distribution assessment in organ at risk for different breast cancer radiotherapy techniques in Iran using Monte Carlo code.
- ❖ Research Opportunity as a Ph.D. Student of Medical Physics (The National Centre for Oncological Hadrontherapy (CNAO)) Six Months
Pavia, Italy November 2016- May 2017
- ❖ M.Sc. of Medical Physics (Mashhad University of Medical Sciences)
Mashhad, Iran Sep 2009- Aug 2012
Thesis Title: A Monte Carlo study on electron and neutron contamination caused by the presence of hip prosthesis in photon mode of a 15 MV Siemens PRIMUS linac
- ❖ B.Sc. of Physics (Payame Noor University of Mashhad)
Mashhad, Iran Sep 2004- Jan 2009

Work Experience:

Physicist in Reza Radiation Oncology Center	Mashhad, Iran	Aug 2010- Jun 2012
Physicist in Qaem Hospital	Mashhad, Iran	Jul 2011- Jan 2012
M.Sc. of Medical Physics Department. Mashhad University of Medical Sciences.	Mashhad, Iran	October 2012 -February 2013
Assistant Prof in Semnan University of Medical Sciences.	Semnan, Iran	Sep 2019 -Present

Teaching Experience:

Mashhad University of Medical Sciences:

- Physics of Diagnostic Radiology to Medical Physics M.Sc. Students
 - Radiation Physics to Radiology Technology Students
 - Physics of Diagnostic Radiology to Radiology Technology Students
 - General Physics to the students of:
 - Medical
 - Pharmacy
 - Environmental Health
 - Professional Health
 - Laboratory Science
 - Surgery Room
 - Monte Carlo simulation: (MCNPX)
M.Sc. students of Medical Physics
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Cooperation in research:

- 1) Bahreyni Toossi MT, **Behmadi M**, Ghorbani M, Gholamhosseinian H.
A Monte Carlo Study on Electron and Neutron Contamination Caused by the Presence of Hip Prosthesis in Photon Mode of a 15 MV Siemens Primus Linac. **(M.Sc. Thesis)**
- 2) Bahreini Toosi MH, Sadeghi M, Nekooei S, Talasaz M, Mahmoodabadi AR, **Behmadi M**.
A new CAD software for evaluation of breast lesions in contrast –enhanced MR mammography.
- 3) Ghorbani M, **Behmadi M**.
Calculation of dosimetric parameters of a hypothetical ^{153}Gd source for use in brachytherapy.
- 4) Firozabadi M, Ghorbani M, **Behmadi M**, Jimabadi E
Calculation of dosimetric parameters of CSM40 source for use in brachytherapy
- 5) Mona Azizi, Ali Asghar Mowlavi, Mehdi Ghorbani, Courtney Knuap, **Marziyeh Behmadi**
A Monte Carlo study on dose perturbation due to dental restorations in a 15 MV photon beam
- 6) **Behmadi M**, Bahreyni Toossi MT, Mohammadi M, Momennezad M, Naseri Sh, Gholamhosseinian H.
Post Radiation Therapy Risk Evaluation and modeling for secondary Cancer (For different breast cancer radiotherapy techniques in Iran) **(Ph.D. Thesis)**
- 7) Sara Mohammadi¹, **Marziyeh Behmadi**, Aghil Mohammadi, Mohammad Taghi Bahreyni
Measurement of Thermal and Fast neutron dose equivalent from a 15-MV linear accelerator using a CR-39 detector with and without of 10B converter layer
- 8) **Marziyeh Behmadi**, Sara Mohammadi, Aghil Mohammadi, Mahdy Ebrahimi Loushab, Mohammad Taghi Bahreyni Tossi

Evaluation of Optimum Moderator Thickness for Conversion of Fast to Thermal Neutron with Monte Carlo for Neutron Sources and Neutron Dose Measurement in Three Different Field Sizes and depths with Pairs TLDs.

9) **Behmadi M**, Ccioca M, Vai A, Mairani A , Margo G, Bahreyni Toosi MT, Sadoughi H, Mohammadi M. Comparison of Proton and Carbon Ion beam characteristics for H&N patients.

10) **Behmadi M**, Ccioca M, Vai A, Mairani A , Margo G, Bahreyni Toosi MT, Sadoughi H, Mohammadi M. Carbon Therapy, a new frontier in radiotherapy.

Journal Papers:

- 1) Bahreyni Toossi MT, **Behmadi M**, Ghorbani M, Gholamhosseinian H.
A Monte Carlo Study on Electron and Neutron Contamination Caused by the Presence of Hip Prosthesis in Photon Mode of a 15 MV Siemens Primus Linac. J Appl Clin Med Phys. 2013 Sep 6; 14(5):52-67.
- 2) Ghorbani M, **Behmadi M**.
Evaluation of hypothetical¹⁵³Gd source for use in brachytherapy. Reports of Practical Oncology & Radiotherapy. Jan-Feb 2016;21(1):17-24.
- 3) Firoozabadi MM, Jimabadi E, Ghorbani M, **Behmadi M**.
Determination of task group 43 dosimetric parameters for CSM40 ¹³⁷Cs source for use in brachytherapy. Radiol Phys Technol. 2018 Mar;11(1):82-90
- 4) Azizi M, Mowlavi A, Ghorbani M, Courtney Knuap, **Behmadi M**
A Monte Carlo study on dose perturbation due to dental restorations in a 15 MV photon beam. 2019 August 1; 15(3): 491-497.
- 5) Batiar MT, Mohammadi M, **Behmadi M**, Ghorbani M
Development of a Phase Space Generator software for Medical Linear Accelerator Applications. Iranian Journal of Medical Physics. 2018 Dec; 15:11
- 6) **M Behmadi**, H Gholamhosseinian, M Mohammadi, Sh Naseri, M Momennezhad, Sh Bayani, MT Bahreyni Toossi.
Evaluation of breast cancer radiation therapy techniques in outfield organs of Rando phantom with thermoluminescence dosimeter. Journal of Biomedical Physics & Engineering. 2019 May; 9(2):179-188.
- 7) Mohammadi S, **Behmadi M**, Mohammadi A, Bahreyni Toossi MT
Thermal and Fast Neutron Dose Equivalent Distribution Measurement of 15-MV Linear Accelerator using a CR-39 Nuclear Track Detectors. Radiat Prot Dosimetry. 2020 March; 188(4):503-507.
- 8) Mohammadi M, **Behmadi M**, Naseri Sh, Momennezhad M.
Reliability of Treatment Planning Systems: Out-Field Dosimetry and Creating Uncertainty Maps for Routine Breast Radiotherapy. Medical Physics. 2020 July; 47(6): 844.
- 9) Ghaznavi H, **Behmadi M**
Impact of different energies on the incidence of thyroid cancer in breast cancer radiotherapy, Frontiers In Biomedical Technologies. 2022 July (In Press)

Conference Posters and presentations:

- 1) International Multidisciplinary Cancer Congress. 4-6th Sep 2012, Mashhad, Iran
Bahreyni Toossi MT, **Behmadi M**, Ghorbani M, Gholamhosseinian H.
A Monte Carlo Study on Electron and Neutron Contamination Caused by the Presence of Hip Prosthesis in Photon Mode of a 15 MV Siemens Primus Linac. *** Selected poster of the congress ***
- 2) The Fourth Research Festival of Graduate Student, Mashhad University of Medical Sciences. 27 Dec 2012, Mashhad, Iran.
Bahreyni Toossi MT, **Behmadi M**, Ghorbani M, Gholamhosseinian H.
A Monte Carlo Study on Electron and Neutron Contamination Caused by the Presence of Hip Prosthesis in Photon Mode of a 15 MV Siemens Primus Linac.
- 3) The Fourth Research Festival of Graduate Student, Mashhad University of Medical Sciences. 27 Dec 2012, Mashhad, Iran.
Bahreini Toosi MH, Sadeghi M, Nekooei S, Talasaz M, Mahmoodabadi AR, **Behmadi M**.
A new CAD software for evaluation of breast lesions in contrast –enhanced MR mammography
- 4) Presentation in “Radiation protection in fluoroscopy of the heart, challenges and new achievements” Seminar. Medical Physics Research Center, Mashhad University of Medical Physics. 21 Nov 2013
- 5) 1st Siemens Radiation Therapy Users Meeting, Reza Radiation Oncology Center, Mashhad, Iran. 4-8 Apr 2014.
Bahreyni Toossi MT, **Behmadi M**, Ghorbani M, Gholamhosseinian H.
A Monte Carlo Study on Electron and Neutron Contamination Caused by the Presence of Hip Prosthesis in Photon Mode of a 15 MV **Siemens Primus** Linac.
*** Selected best talk presented of the meeting ***
- 6) 11th Congress of Iranian Medical Physics. Iranian Association of Medical Physicists and Tehran University of Medical Sciences, Tehran, Iran. 5-6 Oct 2014.
Ghorbani M, **Behmadi M**.
Calculation of dosimetric parameters of a hypothetical 153Gd source for use in brachytherapy.
- 7) The American Association of Physicists in Medicine (AAPM), Canadian Organization of Medical Physicists (COMP) Virtual Meeting. 2020
Mohammadi M, **Behmadi M**, Naseri Sh, Momennezad M.
Reliability of Treatment Planning Systems: Out-Field Dosimetry and Creating Uncertainty Maps for Routine Breast Radiotherapy.

Working in executive jobs

- 1) Dosimetry of Ultra Violet (UVC) Lamps, Imam Reza Hospital, Dec 2012
- 2) Dosimetry of Ultra Violet Lamps (UVC), Mashhad Dental School, Feb 2014
- 3) Dosimetry of Ultra Violet Lamps (UVC), Medical Genetic Department, Apr 2014
- 4) Cooperation in holding of periodic meetings of Iranian Medical Physics Board members from Department of

Medical Physics, Mashhad University of Medical Sciences.

- 5) Cooperation in holding of the first International Day of Medical Physics, Mashhad University of Medical Sciences.
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Professional Experience

- 1) Experience in working
 - Photon and Electron with Linac and Cobalt unit (Mashhad)
 - Proton and Carbon with Cyclotron (CNAO Italy)
 - 2) Experience in Monte Carlo simulation of Linac using Geant4, Gate, Fluka, MCNPX and MCNP4 code
 - 3) Experience in dosimetry with PTW and Scanditronix-wellhofer
 - Linac and Cobalt unit
 - Proton and Carbon Cyclotron (CNAO, Italy)
 - 4) Experience in working with Brachytherapy
 - 5) Experience in Commissioning Linac and QA in radiotherapy
 - 6) Experience in Commissioning cyclotron (Proton and Carbon) QA in CNAO, Italy.
 - 7) Experience in working with Treatment Planning system (TPS) in radiotherapy.
 - Gamma (2D-Alfard,3D- RTDose, Isogray)
 - Proton and Carbon (Syngo Siemens, Ray Station)
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Participated Workshops

- 1) Workshop on Principles of Radiation Dosimetry and Treatment Planning. Mashhad University of Medical Sciences, Iran. 18-19 Feb 2010
- 2) Workshop on Quality Assurance in Radiotherapy with Emphasis on Preventing Unwanted Radiation. Tehran, Iran, Cancer Institute. 16-19 Oct 2010
- 3) Workshop on Principles of Radiation Dosimetry. Reza Radiation Oncology Center, Mashhad, Iran. 24 Nov 2013.
- 4) ENDNOTE Workshop. Mashhad University of Medical Sciences, Iran. 29 Aug 2010
- 5) Workshop on Prostate and Gynecological Brach therapy. International Multidisciplinary Cancer Congress. Pardisan Hotel. Mashhad University of Medical Sciences. Mashhad, Iran. September 4-6th, 2012.
- 6) Workshop on Treatment Planning in Breast Cancer. International Multidisciplinary Cancer Congress. Pardisan Hotel. Mashhad University of Medical Sciences. Mashhad, Iran. September 4-6th, 2012.
- 7) Workshop on Intra Operative Radiotherapy. International Multidisciplinary Cancer Congress. Pardisan Hotel. Mashhad University of Medical Sciences. Mashhad, Iran. September 4-6th, 2012.
- 8) Workshop on Familiarity with Geant4 Tools (60 h). Ferdowsi University College. 10 Mar 2013.
- 9) Advanced Techniques in Radiation Therapy. Reza Radiation Oncology Center, Mashhad, Iran. 7-8th October 2013.
- 10) Clinical Application of Treatment Planning System & Radiation Dosimetry. Reza Radiation Oncology Center,

Mashhad, Iran. 9-11th October 2013.

11) Workshop for Conformal Radiotherapy in Practice. Mashhad, Iran, 9-10th December, 2014

12) The Second Country Planned Workshop on Clinical Dosimetry of Electron Beam. Iranian Association of Medical Physicists and Tehran University of Medical Sciences, Tehran, Iran and Reza Radiation Oncology Center, Mashhad, Iran, 26-27 February 2014.

Participated Conferences:

- 1) Conference on Medical Applications of Mathematics, QC theory. Mashhad University of Medical Sciences and Ferdowsi University. 29-30 Dec 2009.
- 2) 9th Congress of Iranian Medical Physics. Iranian Association of Medical Physicists and Iran University of Medical Sciences, Tehran, Iran. 19-20 May 2010
- 3) Seminar of thinking and new techniques to detect genetic effects of ionizing radiation exposure. Mashhad University of Medical Sciences, Iran. 24-25 Feb 2011
- 4) Scientific Seminar of ionizing radiation: sources, detectors, and biological effects. Mashhad University of Medical Sciences, Iran. 8-9 Jun 2011
- 5) 1st MEFOPM International Conference of Medical Physics. Shiraz- IR Iran, 2th-4th of November, 2011.
- 6) International Multidisciplinary Cancer Congress. Pardisan Hotel. Mashhad University of Medical Sciences. Mashhad, Iran. 4-6th Sep 2012.
- 7) 11th Congress of Iranian Medical Physics. Iranian Association of Medical Physicists and Tehran University of Medical Sciences, Tehran, Iran. 5-6 Oct 2014
- 8) International Symposium on Proton Therapy. IBA. Milan, Italy. 1st 2017 April.

Computer Skills

- 1) Operating System: Windows, **Linux**, Dos
- 2) Programming: C++
- 3) **Treatment Planning System in Radiotherapy**
 - **Gamma (2D-Alfard,3D- RTDose, Isogray)**
 - **Proton and Carbon (Syngo Siemens, Ray Station)**
- 4) **Monte Carlo simulation: Geant4, Gate, Fluka, MCNPX, MCNP4**
- 5) **PRIMO** (A computer software that simulates clinical linear accelerators)
- 6) **Matlab and** Image Processing Software (Slicer, Itk SNAP, ...)
- 7) Software: M.S. Office, Endnote, Photoshop,

Language:

Persian (Native)

English (Fluent)

French (Intermediate)

Italy (Intermediate)