

Curriculum Vitae

Mohammad Ali Tajik-Mansoury, Ph.D.

Medical Physicist/Assistant Professor
Shahid Beheshti University of Medical Sciences (SBMU)

Contact Information

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Employment History

2022-present Assistant Professor, Department of Biomedical Engineering and Medical Physics, SBMU
2021-2022 Head of Medical Physics Department of Semnan University of Medical Sciences
2015-2022 Assistant Professor, Department of Medical Physics, SEMUMS
2017-2022 Physicist in Raaheaseman Nuclear Medicine Center
2017-2022 Health Physics and Safety Officer in Kowsar Hospital
2019-2020 Technical supervisor of Nuclear Medicine Center
2017-2018 Health Physics and Safety Officer in 15-Khordad Hospital
2018-2020 Internal Manager of Raaheaseman Nuclear Medicine Center

Education

2010-2015 Ph.D., Medical Physics, Tarbiat Modares University, Tehran, Iran
2007-2010 M.Sc., Medical Physics, Tarbiat Modares University, Tehran, Iran
2003-2007 B.Sc., Applied Physics, Damghan University, Semnan, Iran

Brief Scope of Clinical Practice

Nuclear Medicine

- Performed elution of ^{99}Mo - $^{99\text{m}}\text{Tc}$ radionuclide generator. Prepared and dispensed radiopharmaceuticals in hot lab
- Performed daily, weekly, monthly and annual QC for ADAC/Philips SPECT, Siemens SymbiaEvo excel SPECT
- Designed optimum imaging protocols for ^{67}Ga , ^{201}Tl , $^{99\text{m}}\text{Tc}$ and ^{131}I Designed organ-specific optimum image reconstruction for SPECT images

Teaching and Mentoring Experience

Teaching Experience:

I. **As Assistant Professor:**

❖ **Semnan** University of Medical Sciences;

A- **Medical Physics MSc students**

- Nuclear Medicine Physics 2015-present
- Medical imaging Physics 2015-present
- Research methodology 2017
- Technical language 2020
- Radioactive Waste disposal and environmental monitoring. 2017-present
- Seminar for Medical Physics Students 2017- present

B- **Bachelor students**

- Biophysics of Laboratory Sciences students .2015-2017
- Medical Physics of Operation Room students .2015-2018
- Introduction to IT & ICT for Radiology students.2015-2017
- Radiation Physics for Radiology students.2016-2017
- Technical language for Radiology students.2015-present
- Computed Tomography physics for Radiology students.2015-present
- Seminar for Radiology students.2015-present

C- **General medical students**

- Medical Physics for medical Students
- Medical Physics for Dentistry Students
- Internship in Nuclear Medicine Department

II. **As Instructor:**

❖ Islamic **Azad** University;

- Physics of Halliday. Volume 3. 2009-2010

❖ **Hamedan** University of Medical Sciences;

- Computer application in Medicine for Radiology students 2013-2014
- CT application and Techniques for Radiology students 2013-2014

❖ **Semnan** University of Medical Sciences;

- Computer application in Medicine for MSc of Medical physics 2013

❖ **Shahid Beheshti** University of Medical Sciences) School of Midwifery and Nursing) ;

- Basics Physics and Measurement in Anesthesia 2013-2015
- Medical Physics of Operation Room students 2013-2015
- Radiology, Sonology and Electrology in Midwifery 2014-2015

III. **As Teacher Assistant:**

- ❖ Damghan university
 - Physics of Halliday. Volume 1 &2. 2006-2007.
- ❖ Tarbiat Modares
 - Nuclear Physics for MSc of Medical physics. University. 2012-2014.
 - Monte Carlo Methods in Medical Physics. 2013-2015.

Computer Skills

- Operating System: expert in Linux(UNIX), Windows, Dos
- expert in MATLAB and Image Processing Software
- Programming experiences: C++, basic Python, Visual Basic, MS Excel
- Monte Carlo simulation: Geant4, Gate, MCNP, SimSET, Simind, etc.
- Expert in Statistical Calculation Software (e.g. SPSS, Minitab, SigmaPlot, etc.)
- Syngo (A computer software for Siemens nuclear Medicine Workflow Definition)
- Win Software: M.S. Office, Endnote, Photoshop, Mendeley
- Radiation Dosimetry Software experiences: RadProCalculator, MIRDCalc, RadToolbox, VMC

Professional Experience

- 1) Experience in Monte Carlo simulation of DNA using Geant4, Gate code
- 2) Experience in dosimetry with
 - Geiger Muller counter and survey meter(kata)
- 3) Experience working in Nuclear Medicine Hot Lab
 - $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ generator, Dose Calibrator, labeling and etc.
- 4) Clinical experience working with SPECT imaging system.
 - Siemens (Syngo)

Research Projects & Cooperation;

As supervisor;

- Comparison of absorbed doses of neuroendocrine tumors in combination radionuclide therapy with ^{177}Lu and ^{90}Y using GATE Monte Carlo simulation code (ethics code: IR.SEMUMS.REC.1398.141)
- Comparison of diagnostic value of 8 and 16 frames gated SPECT imaging for evaluation of cardiac function: effects of gender and body mass) ethics code: IR.SEMUMS.REC.1398.186)

- Analysis and study on dosimetric parameters of the hypothalamus gland in the treatment planning of patients with head and neck cancer under external radiation therapy using COREPLAN and MONACO treatment planning systems (ethics code: IR.SEMUMS.REC.1397.212)
- Combined effect of 2 mT magnetic field and Rumex hydro alcoholic extract and nanoparticle magnetic on proliferation and death rate of cancerous cells of stomach (MKN cell line) (ethics code : IR.SEMUMS.REC.1397.145)
- Optimization of injected radiopharmaceutical dosage based on patient specific parameters in MPI (ethics code: IR.SEMUMS.REC.1399.015) .

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As consultant;

- Evaluation and modelling of lateral scattering of proton pencil beams in tissue elements with using Monte Carlo simulation (completed)
The results of this project were published in two peer-reviewed journal papers and presented as three oral presentations at congresses.
- Evaluation of dose distributions for interstitial brachytherapy of prostate cancer in the presence of uniform magnetic field (ethics code: IR.SEMUMS.REC.1398.106)
- Assessment of vacuum levels on x ray spectra with Monte Carlo simulation method (completed)

Selected Recent Peer-Reviewed Publications

- **Mohammad Ali Tajik Mansoury**, hossein Rajabi, hossein Mozdarani. A comparison between track-structure, condensed-history Monte Carlo simulations and MIRD cellular S-values. Phys Med Biol 2017; 62(5) N90.
- **Tajik-Mansoury MA**, Rajabi H, Mozdarani H. Cellular S-value of beta emitter radionuclide's determined using Geant4 Monte Carlo toolbox, comparison to MIRD S-values. Iranian Journal of Nuclear Medicine. 2016;24(1):37-45.
- Peer-Firozjaei, Milad, **Mohammad Ali Tajik-Mansoury**, Parham Geramifar, Ali Asghar Parach, and Shiva Zarifi. "Implementation of dose point kernel (DPK) for dose optimization of ¹⁷⁷Lu/⁹⁰Y cocktail radionuclides in internal dosimetry." Applied Radiation and Isotopes 173 (2021): 109673.

- Mazinani, Mahdi, **Mohammad Ali Tajik-Mansoury**, Mahsa Sabour, and Majid Jadidi. "A comparison of 8 and 16 frames gated SPECT imaging for determination of left ventricular volumes and ejection fraction: effects of gender and myocardial counts." *The International Journal of Cardiovascular Imaging* (2021): 1-6.
- Peer-Firozjaei, Milad, **Mohammad Ali Tajik-Mansoury**, Raheb Ghorbani, and Mahdi Mazinani. "Evaluation of Dosimetric Parameters for Tumor Therapy with ¹⁷⁷Lu and ⁹⁰Y Radionuclides in Gate Monte Carlo Code." *Journal of Biomedical Physics and Engineering* (2021).
- Mazinani, Mahdi, **Mohammad Ali Tajik Mansoury**, Mahsa Sabour, Majid Jadidi, Milad Peer Firozjaei, and Nader Asadian. "Assessment relation of myocardial detector counts and administered activity of ^{99m}Tc-SestaMIBI in MPI: The effects of body weight, BMI and gender." *Current Radiopharmaceuticals* (2021).
- Hadi Taleshi, Hossein Rajabi, Mohammad Eftekhari, Fariba Johari Daha, **Mohammad Ali Tajik Mansoury**. Liver Bremsstrahlung Imaging with Pure Beta Emitter. *Journal of Medical Sciences* 2014; 14:210-216
- Zarifi, S., Ahangari, H.T., Jia, S.B., Tajik-Mansoury, M.A. Validation of GATE Monte Carlo code for simulation of proton therapy using National Institute of Standards and Technology library data. 2019. *Journal of Radiotherapy in Practice*, 18(1), pp. 38-45.
- **Tajik-Mansoury, M.A.**, Ahangari, H.T., Rajabi, H., Jadidi, M. Evaluation of cellular S-value of auger electrons emitting ¹¹¹In radionuclide by Geant4 and its comparison with MCNP5 Monte Carlo codes and MIRD published data. *Koomesh*, 2019. 21(3), pp. 567-575.
- Zarifi, S., Taleshi Ahangari, H., Jia, S.B., **Tajik-Mansoury, M.A**, Najafzadeh, M., Firouzjaei, M.P. Bragg peak characteristics of proton beams within therapeutic energy range and the comparison of stopping power using the GATE Monte Carlo simulation and the NIST data. 2020 *Journal of Radiotherapy in Practice*. 20(1), pp. 1-9.
- Zarifi, S., Taleshi Ahangari, H., Jia, S.B., **Tajik-Mansoury, M.A**, Najafzadeh .GATE modelling of lateral scattering of proton pencil beams: 2020 *Radiation Protection Dosimetry*. 189(1), pp. 76-88.
- M Jadidi, H Taleshi Ahangari, P Hejazi, **MA Tajik Mansoury**; Evaluation of Effective factor on the Education Performance of Medical physics group, 2018. *Biannual Journal of Medical Education Education Development Center (edc) Babol University of Medical Sciences*; , 6(9), pp. 39-47.
- Rajabi H, Ahangari HT, Mohammadi I, Mohammadkarim A, **Tajik-Mansoury MA**. Attenuation correction in single-photon emission computed tomography for NURBS-based cardiac-torso phantom using dual-energy acquisition. *World J Nucl Med* 2020;19:211-9.

- **Mohammad Ali Tajik Mansoury** · Hossein Rajabi · Ali Reza Emami-Ardakani · Ali Asghar Parach. Assessment effect of wavelet transform in precision of motion detection for renal dynamic scintigraphy: simulation study .August 2010 · Iranian Journal of Nuclear Medicine.
- Ali Asghar Parach · Hossein Rajabi · Mohammad Ali Askari · **Mohammad Ali Tajik Mansoury**. Assessment of MIRD data for internal dosimetry using the GATE Monte Carlo code . August 2010 · Iranian Journal of Nuclear Medicine.
- Ali Asghar Parach · Hossein Rajabi · **Mohammad Ali Tajik-Mansoury** · Hadi Taleshi Ahangari. Comparison of GATE and MCNP Monte Carlo codes for internal dosimetry .January 2010 · Iranian Journal of Nuclear Medicine.

Selected Recent Conference Presentations

- **Mohammad ali tajik mansoury**, hossein rajabi , alireza emami ardakani: Study of Motion detection methods for assessment of varieties of patient motions in renal dynamic imaging: simulation study . Annual Conference of Association of Medical Physicists of India (AMPICON 2010).
- **Mohammad ali tajik mansoury**, hossein rajabi , alireza emami ardakani Assessment Effect Of Wavelet Transform In Precision Of Motion Detection For Renal Dynamic Scintigraphy: Simulation Study. Oral Presentation. Iranian congress of nuclear medicine.2011
- **Mohammad ali tajik mansoury**, hossein rajabi , alireza emami ardakani .Assessment two Motion detection methods for patient motions in renal dynamic imaging: simulation study. Oral Presentation. Iranian congress of nuclear medicine. 2011
- **Mohammad ali tajik mansoury**, hossein rajabi, hossein mozdarani. Comparison Geant4-DNA simulation of cellular S-value for ^{111}In , with MIRD and MCNP. Iranian congress of nuclear medicine. November 2014, Oral Presentation.
- Statistical uncertainty estimation in the calculation of the proton range in water phantom.S Zarifi, H Taleshi Ahangari, SB Jia, **MA Tajik Mansoury**, E Kashian,Iranian Journal of Medical Physics 2018; 15, 362-362
- A method for range calculation of proton in liquid water: Validation study using Monte Carlo method and NIST data .S Zarifi, H Taleshi Ahangari, SB Jia, **MA Tajik Mansoury**,Iranian Journal of Medical Physics2018: 15, 360-360
- Monte Carlo calculation of proton ranges in water phantom for therapeutic energies. S Zarifi, H Taleshi Ahangari, SB Jia, **MA Tajik Mansoury**, E Kashian,Iranian Journal of Medical Physics 2018; 15, 361-361

- Selection of optimized energy for ^{177}Lu in radionuclide therapy of neuroendocrine Tumors: a simulation study: Milad Peer Firouzjaei, **Mohammad ali Tajik Mansoury**, 23rd, Iranian Nuclear Medicine Congress. 2019
- Patient-specific dosimetry, by using dose point kernel of $^{177}\text{Lu}/^{90}\text{Y}$ cocktail radionuclide. Milad Peer Firouzjaei, **Mohammad ali Tajik Mansoury**, Parham Geramifar, 23rd, Iranian Nuclear Medicine Congress. 2019
- Calculation of organ S-value for Targeted Radionuclide Therapy (TRT) of head and neck cancer: Simulation Study. Amine Rajabi. Hossein Rajaie. **Mohammad Ali Tajik-mansoury**. Maryam Rezaei, 23rd, Iranian Nuclear Medicine Congress. 2019
- Accuracy Evaluation of ICRP's Radiation Protection Guidelines in Semnan's Raaheeseman Nuclear Medicine Center (2018-2019). Nader Asadian, **Mohammad Ali Tajik Mansoury**, Fatemeh Pazooki, Elham Kashian, 23rd, Iranian Nuclear Medicine Congress. 2019
- A Comparison of the results of Monte Carlo GATE and MCNP codes on dosimetry of neuroendocrine tumors in treatment with ^{177}Lu . Milad Peer Firouzjaei, **Mohammad ali Tajik Mansoury**, Parham Geramifar, Rasoul shamohamadi, 23rd, Iranian Nuclear Medicine Congress. 2019
- Optimized and specified the amount of injectable activity in myocardial perfusion imaging(MPI) SPECT . Mahdi Mazinani, **Mohammad Ali Tajik Mansouri**, Mahsa Sabour, Nader Asadian, Elham Kashian, 23rd, Iranian Nuclear Medicine Congress. 2019

Book Translation:

“**Physics and Radiobiology of Nuclear Medicine**”. Fourth Edition Gopal B. Saha, Ph.D. (translated to Persian)

Research interests;

- Monte Carlo simulation in medicine (Geant4, G4-DNA projects, GATE, ...)
- Therapeutic Nuclear Medicine (Internal Dosimetry, Radiobiology Modeling and Treatment Planning).
- Nuclear Medicine Imaging and Instrumentation (PET, SPECT).
- Nuclear Medicine Imaging & Radiation Protection.
- Monte Carlo Cell Dose Calculation and Radiobiology in Radiation Therapy.
- Modeling and simulation of Cell and DNA in Radiation research.