

Ali Asghar Mowlavi C.V.

Professor in Applied /Medical Physics

Personal Information:

First name: Ali Asghar

Family name: Mowlavi

Degree: PhD in Radiation/Medical Physics

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Date of birth: 1st September, 1973

Place of birth: Sabzevar, Iran.

Nationality: Iranian

Education:

Undergraduate (Institution, Address, Degree, Major, Date of graduation)

Ferdowsi University of Mashhad, Mashhad, Iran B.Sc., Physics 1995

Graduate (Institution, Address, Degree, Major, Date of graduation)

Ferdowsi University of Mashhad, Mashhad, Iran M.Sc. Physics 1997

Ferdowsi University of Mashhad, Mashhad, Iran PhD. Radiation/Medical Physics

2003

"Young Scientist Award (Medal & Prize) 2006"

in Medical Physics, IOMP (International Organization of
Medical Physics), WC2006, Seoul, Korea

"TRIL Prize in Medical Physics 2010"

The Abdus Salam International Center for Theoretical Physics

"Regular Associate Member of ICTP 2012-2018"

The Abdus Salam International Center for Theoretical Physics, Trieste -
Italy

Awards and Grants:

- Associate Member of ICTP, full grant for 300 days during 6 years, 2012-2018
- Research Associate (2 to 3 months research period in summers) – (2007 / 2008/ 2010/2013/2014/2016/2017/2019) ICTP, Trieste, Italy.
- Getting a full grant for conference in WCEB2 in Taiyuan, China, from Emerging Nations Science Foundation (ENSF), 2012.
- Receiving a prize from the TRIL programme in recognition of my quality fellowship work at the Medical Physics Department of Azienda Ospedaliero Universitaria in Trieste, 2010.
- TRIL program, 9 months grant 2009 at ICTP for collaboration with Medical Physics Group in Ospedale Maggiore of Trieste, Italy.
- 9 months research fellowship from 2002 to 2003 at for collaboration with Medical Physics Group in Ospedale Maggiore of Trieste, Italy.
- Selected as one of the best researchers in 2004, 2005, 2006, 2008, 2009 and 2011, at Hakim Sabzevari University, Sabzevar, Iran.

Research Interest:

- **Medical Physics**
- **Radiation Dosimetry**
- **Monte Carlo Simulation**
- **Radiotherapy and X-ray imaging**
- **Radiation Detection and Shielding**
- **Hadron Therapy**
- **Radon Measurement**
- **Computational Physics**

PROFESSIONAL AND ACADEMIC EXPERIENCES:

- Professor of Radiation Physics/Medical Physics – (March 2023 –Present) Faculty of Sciences, Hakim Sabzevari University, Sabzevar, Iran.
- Professor of Radiation Physics/Medical Physics – (September 2021- March 2023) Faculty of Sciences, Ferdowsi University of Mashhad, Mashhad, Iran.
- President of Hakim Sabzevari University (2018- 2022).
- Professor of Radiation Physics/Medical Physics – (2008 – September 2021) Faculty of Sciences, Hakim Sabzevari University, Sabzevar, Iran.
- Distinguished Professor of Academic Promotions Board in Damghan University (2016-2022).
- Member of Academic Promotions Board in Hakim Sabzevari University (2013- 2022).
- Vice Dean of Research and Technology– (2014 - 2018) Hakim Sabzevari University, Sabzevar, Iran.

- Research Associate – (2009 - 2010) Fisica Sanitaria di Trieste, Trieste, Italy.
- Associate Professor of Applied /Medical Physics - (2008 - 2012) Faculty of Sciences, Hakim Sabzevari University, Sabzevar, Iran
- Research Associate (short research visit in summer: up to 3 months) – (2007/2008/2010/2013/2014/2016/2017/2019) ICTP, Trieste, Italy.
- Manager of research and education team in Municipality of Sabzevar- (2013-2015) Municipality of Sabzevar, Sabzevar, Iran.
- Honorary member of Department of Environment in Sabzevar region (2015-Present) Sabzevar, Iran.
- Head of Physics Department – (2007 - 2009) Hakim Sabzevari University, Sabzevar, Iran
- Assistant Professor of Physics – (2004 - 2008) Faculty of Sciences, Hakim Sabzevari University, Sabzevar, Iran.

Paper Publications in Journals:

- 1) L Mogheiseh, AA Mowlavi, B Jia, R Shamsabadi **“Secondary particle dose assessment during the proton therapy of liver cancer: a Monte Carlo study”** *Radiation Physics and Engineering*, in press, 2023. <https://doi.org/10.22034/rpe.2023.391186.1126>
- 2) A Koshki, AA Mowlavi, ST Hossini **"Application of localized surface Plasmon resonance of conjugated gold nanoparticles in spectral diagnosis of SARS-CoV-2: numerical study"** *Plasmonics*, in press, 2023. <https://doi.org/10.1007/s11468-023-01901-1>
- 3) S Abdollahi, AA Mowlavi, MHH Yazdi, S Ceberg, MC Aznar, F Varshoe Tabrizi, R Salek, A Ghodsi, A Shams **“A dose planning study for cardiac and lung dose sparing techniques in left breast cancer radiotherapy: Can free breathing helical tomotherapy be considered as an alternative for deep inspiration breath hold?”** *Technical Innovations & Patient Support in Radiation Oncology* 25: 100201-100208, 2023.
- 4) M Golshani, AA Mowlavi, B Azadegan **“Gadolinium neutron capture therapy: Calculation of ^{157}Gd kerma factor and a dosimetry study using MCNP Monte Carlo code”** *Radiation Physics and Chemistry* 197: 110155, 2022.
- 5) HR Baghani, A Gheibi, AA Mowlavi **“Comparing the inter-seed effect for some iodine-125 brachytherapy sources through a Monte Carlo simulation approach”** *Computer Methods and Programs in Biomedicine* 224: 107000, 2022.
- 6) M Fadavi Mazinan, AA Mowlavi **“Selecting the best time measurement method for the UFSD signals”** *Journal of Nuclear Science and Technology* 44(2): 47-53, 2023.
- 7) S Abdollahi, MHH Yazdi, AA Mowlavi, S Ceberg, MC Aznar, F Varshoe Tabrizi, R Salek, A Ghodsi, F Jamali **“Surface guided 3DCRT in deep-inspiration breath-hold for left sided breast cancer radiotherapy: implementation and first clinical experience in Iran”** *Reports of Practical Oncology and Radiotherapy* 27(5): 881-896, 2022.
- 8) R Gharaei, A Fuji, B Azadegan, AA Mowlavi **“Exploring the fusion hindrance phenomenon: the case of $^{32,34}\text{S} + ^{89}\text{Y}$ ”** *Physica Scripta* 96(6): 065306, 2021.

- 9) R Shamsabadi, HR Baghani, AA Mowlavi, B Azadegan **“Effective energy assessment during breast cancer intraoperative radiotherapy by low-energy X-rays: A Monte Carlo study”** *Radiation and Environmental Biophysics* 60(1): 125-134, 2021.
- 10) ZA Ganjeh, M Eslami-Kalantari, ME Loushab, AA Mowlavi **“Calculation of direct DNA damages by a new approach for carbon ions and protons using Geant4-DNA”** *Radiation Physics and Chemistry* 179: 109249, 2021.
- 11) R Shamsabadi, HR Baghani, B Azadegan, AA Mowlavi **“Impact of spherical applicator diameter on relative biologic effectiveness of low energy IORT X-rays: A hybrid Monte Carlo study”** *Physica Medica* 80: 297-307, 2020.
- 12) A Afzalifar, M Mohammadi, AA Mowlavi **“Performance of a Linear Accelerator Couch Positioning Quality Control Task using an Electronic Portal Imaging Device”** *Radiological Physics and Technology* 13:195–200, 2020.
- 13) R Shamsabadi, HR Baghani, B Azadegan, AA Mowlavi **“Monte Carlo Based Analysis and Evaluation of Energy Spectrum for Low-kV IORT Spherical Applicators”** *Zeitschrift für Medizinische Physik* 177: 109110, 2020.
- 14) H Dowlatabadi, AA Mowlavi, M Ghorbani; S Mohammadi, C Knaup **“Study of Photoneutron Production for the 18 MV Photon Beam of the Siemens Medical linac by Monte Carlo Simulation”** *Journal of Biomedical Physics and Engineering* 10(6): 679-690, 2020.
- 15) H Alehdaghi, E Assar, B Azadegan, J Baedi, AA Mowlavi **“Investigation of optical and structural properties of aqueous CdS quantum dots under gamma irradiation”** *Radiation Physics and Chemistry* 166: 108476, 2020.
- 16) M Mashayekhi, AA Mowlavi, SB Jia, H Ghayoumizadeh **“Optimization of an ultra-fast silicon detector for proton and carbon beams using GEANT4 Monte Carlo toolkit”** *Reports of Practical Oncology & Radiotherapy* 25(1): 109-112, 2020.
- 17) Z Danaei, HR Baghani, AA Mowlavi **“Absorbed Dose Assessment from Short-Lived Radionuclides of Radon (²²²Rn) Decay Chain in Lung Tissue: A Monte Carlo Study”** *Iranian Journal of Medical Physics* 17(2): 66-74, 2020.
- 18) S Aslanzadeh, MR Shojaei, AA Mowlavi **“Calculation the energy levels and charge radius of ²⁴Mg and ³²S isotopes in the cluster model”** *Canadian Journal of Physics* 98(2): 148-152, 2020.
- 19) Z Ahmadi Ganjeh, M Eslami-Kalantari, AA Mowlavi **“Dosimetry calculations of involved and noninvolved organs in proton therapy of liver cancer: a simulation study”** *Nuclear Science and Techniques* 30: 173, 2019.
- 20) SA Mahdipour, B Azadegan, AA Mowlavi, M Shafeei, W Wagner **“Numerical and Monte Carlo study of positron production in a hybrid scheme based on $\langle 100 \rangle$ axial channeling radiation in a Si single crystal”** *Nuclear Instruments and Methods in Physics Research B* 458: 72-76, 2019.
- 21) M Azizi, AA Mowlavi, M Ghorbani, B Azadegan **“Experimental study of the influence of dental restorations on thermal and fast photo-neutron production in radiotherapy with a high-energy photon beam”** *Applied Radiation and Isotopes* 147: 113-120, 2019.

- 22) S Aslanzadeh, MR Shojaei, AA Mowlavi "Consideration of some static properties for doubly-magic nuclei of ^{41}Ca and ^{17}O in relativistic systems" *The African Review of Physics* 14: 66-71, 2019.
- 23) M Zabihinpour, AA Mowlavi, B Azadegan "The role of natural ventilation on reducing of indoor radon concentration" *Iranian Journal of Radiation Safety and Measurement* 6(4)1-10, 2018.
- 24) A Afzalifar, M Bashi, AA Mowlavi, MR Fornasier, HR Baghani "Monte Carlo based determination of dose distribution for some patch sources employed for radionuclide skin therapy" *Australasian Physical & Engineering Sciences in Medicine* 41(4): 853-860, 2018.
- 25) M Golshani, AA Mowlavi, B Azadegan "Computational Assessment of the Cellular Dosimetry and Microdosimetry of the Gadolinium Electrons Released During Neutron Capture Therapy" *Biomedical Physics & Engineering Express* 5(2): 025031, 2018.
- 26) M Azizi, AA Mowlavi, M Ghorbani, B Azadegan, F Akbari "Dosimetric evaluation of scattered and attenuated radiation due to dental restorations in head and neck radiotherapy" *Journal of Radiation Research and Applied Sciences* 11(1): 23-28, 2018.
- 27) H Dowlatabadi, AA Mowlavi, M Ghorbani, S Mohammadi, F Akbari "Benchmarking of Siemens Linac in Electron Modes: 8-14 MeV Electron Beams" *Journal of biomedical physics & engineering* 8 (2): 157-166, 2018.
- 28) M Zabihinpour, AA Mowlavi, B Azadegan "The Necessity of the Study of the Distribution of Radon Concentration in Residential Buildings" *World Journal of Environmental Biosciences* 7 (2): 117-121, 2018.
- 29) M Mashayekhi, AA Mowlavi, SB Jia "Simulation of positron emitters for monitoring of dose distribution in proton therapy" *Reports of Practical Oncology & Radiotherapy* 22 (1): 52-57, 2017.
- 30) M Bashi, HA Rahnamaye Aliabad, AA Mowlavi, I Ahmad " ^{127}I NMR calculations in binary metal iodides by PBE-GGA, YS-PBE0 and mBJ exchange correlation potentials" *Solid State Nuclear Magnetic Resonance* 82-83: 10-15, 2017.
- 31) S Malmir, AA Mowlavi, S Mohammadi "Enhancement Evaluation of Energy Deposition and Secondary Particle Production in Gold Nanoparticle Aided Tumor Using Proton Therapy" *Int J Cancer Manag* 10(10):e10719, 2017.
- 32) H Dowlatabadi, AA Mowlavi, M Ghorbani "Monte Carlo Simulation of Siemens Primus Plus linac for 6 and 18 MV Photon Beams" *J Biomed Phys Eng* 7(4): 333-346, 2017.
- 33) M Azizi, AA Mowlavi, M Ghorbani, D Davenport "Effect of various dental restorations on dose distribution of 6 MV photon beam" *Journal of Cancer Research and Therapeutics* 13(3): 538-543, 2017.
- 34) H Dowlatabadi, AA Mowlavi, M Ghorbani, S Abdolahi "Monte Carlo Simulation of Siemens Primus Plus linac for 6 and 18 MV Photon Beams" *Journal of Biomedical Physics and Engineering* 7(4): 333-346, 2017.
- 35) L Gholamkar, AA Mowlavi, M Sadeghi, M Athari "Assessment of Mean Glandular Dose in Mammography System with Different Anode-Filter Combinations Using MCNP Code" *Iranian Journal of Radiology* 13(3): 1-11, 2016.

- 36) L Gholamkar, M Sadeghi, AA Mowlavi, M Athari "Calculation of the X-Ray Spectrum of a Mammography System with Various Voltages and Different Anode-Filter Combinations Using MCNP code" *Iranian Journal of Medical Physics* 13(3): 154-162, 2016.
- 37) SA Mahdipour, AA Mowlavi "Ion therapy for uveal melanoma in new human eye phantom based on GEANT4 toolkit" *Medical Dosimetry* 41(2): 118-125, 2016.
- 38) F Razghandi, R Izadi, A Mowlavi "Calculation of the Dose of Samarium-153-Ethylene Diamine Tetramethylene Phosphonate (153Sm-EDTMP) as a Radiopharmaceutical for Pain Relief of bone Metastasis" *Iranian Journal of Medical Physics* 12 (4): 278-283, 2016.
- 39) SB Jia, F Romano, GAP Cirrone, G Cuttone, MH Hadizadeh, AA Mowlavi, L Raffaele "Designing a range modulator wheel to spread-out the Bragg peak for a passive proton therapy facility" *Nuclear Instruments and Methods in Physics Research A* 806: 101-108, 2016.
- 40) ME Loushab, AA Mowlavi, MH Hadizadeh, R Izadi, SB Jia "Impact of Various Beam Parameters on Lateral Scattering in Proton and Carbon-ion Therapy" *Journal of biomedical physics & engineering* 5(4): 169-178, 2015.
- 41) SM Motevalli, AA Mowlavi, M Rahmani "Monte Carlo Simulation of proton therapy for breast cancer in compressed breast phantom" *ISMJ* 18 (2): 288-295, 2015.
- 42) M Mirzaei, AA Mowlavi "Comparison beta absorbed dose from ^{203}Hg , ^{166}Ho and ^{177}Lu isotopes in cortex and medulla in tree part kidney and integrated kidney using Monte Carlo method" *ISMJ* 18 (1): 64-75, 2015.
- 43) M Mashayekhi, AA Mowlavi "Calculation of Positron Distribution in the Presence of a Uniform Magnetic Field for the Improvement of Positron Emission Tomography (PET) Imaging Using GEANT4 Toolkit" *Iranian Journal of Medical Physics* 12(1): 7-13, 2015.
- 44) AA Mowlavi, P Bregant, M Mirzaei, MR Fornasier, M de Denaro "Analytical functions for beta and gamma absorbed fractions of Iodine-131 in spherical and ellipsoidal volumes" *Annals of Nuclear Medicine* 28(8): 824-828, 2014
- 45) A Yahaybadi, M Ghorbani AA Mowlavi "A Monte Carlo evaluation of dose enhancement by cisplatin and titanocene dichloride chemotherapy drugs in brachytherapy with photon emitting sources" *Australas Phys Eng Sci Med* 37(2): 327-36, 2014.
- 46) B Jia, MH Hadizadeh, AA Mowlavi "Evaluation of Energy Deposition and Secondary Particle Production in Proton Therapy of Brain Using a Slab Head Phantom" *Reports of Practical Oncology and Radiotherapy* 19(6): 376-384, 2014.
- 47) AA Mowlavi, F MohammadJafari, A Binesh "Radon and Thoron measurements in active faults of North-East of Iran" *Iranian Journal of Radiation Safety and Measurement* 4(2): 31-36, 2014.
- 48) B Jia, AA Mowlavi, MH Hadizadeh, M Ebarhimi "Impact of Range Straggling and Multiple Scattering on Proton Therapy of Brain, Using a Slab Head Phantom Impact of Range Straggling and Multiple Scattering on Proton Therapy" *International Journal of Radiation Research* 12(2): 161-167, 2014.

- 49) HR Baghani, AR Nazempour, SMR Aghamiri, SM Hosseini Daghigh, AA Mowlavi "Effectiveness Evaluation of Skin Covers against Intravascular Brachytherapy Sources Using VARSKIN3 Code" *J Biomed Phys Eng* 3(4): 123-132, 2013.
- 50) AA Mowlavi, M Zibandeh-Gorji, S Mohammadi S Sadoghi Yazdi "Position optimization of brachytherapy sources at 2D and 3D using genetic algorithm" *Iranian Journal of Radiation Safety and Measurement* 1(3): 15-20, 2013.
- 51) AA Mowlavi, Mirzaei M, MR Fornasier, M de Denaro "Calculation of beta absorbed fractions for iodine isotopes in ellipsoidal thyroid lobe" *International Journal of Radiation Research* 11(2): 121-126, 2013.
- 52) AA Mowlavi, A Binesh "Effective dose rate evaluation from radon in the air and water samples of neyshabur turquoise mine" *Elixir Pollution* 52: 11488-11489, 2012.
- 53) AA Mowlavi, M Zibandeh-Gorji, S Mohammadi "Using matrix summation method for three dimensional dose calculation in brachytherapy" *Reports of Practical Oncology and Radiotherapy* 17(2): 110-114, 2012.
- 54) AA Mowlavi, M Zibandeh-Gorji, S Mohammadi "Applying Genetic algorithm to optimize the places and the activities of the seeds in brachytherapy to deliver desire dose to the defined border" *Journal of Cancer Science & Therapy* 4(1):1-3, 2012.
- 55) AA Mowlavi, M Mirzaei, S Mohammadi, H Mirshkarpor "Absorbed dose calculation from beta and gamma rays of ^{131}I in ellipsoidal thyroid and other organs of neck with MCNPX Code" *Tebe-h Jnob* 15(3): 201-208, 2012.
- 56) AA Mowlavi, A Binesh "Indoor Radon Measurement in 150 Apartments of Mashhad City in Iran" *Advances in Environmental Research & Development* 184(2): 1085-1088, 2012.
- 57) A Binesh, AA Mowlavi, S Mohammadi, P Parvareh "Estimation of the radiation dose from radon ingestion and inhalation in drinking water sources of Mashhad (Iran)" *Iranian Journal of Radiation Research* 10(1): 37-41, 2012.
- 58) AA Mowlavi, M Yazdani "Monte Carlo simulation of dose perturbation in different breast tissues induced by radiographic contrast inside brachytherapy balloon applicators" *Elixir Pharmacy* 43: 6970-6973, 2012.
- 59) MT Bahreyni Toossi, M Ghorbani, AA Mowlavi, A Hashemian, A Soleimani, Meigooni "Dose distribution verification for GZP6 sources: a comparison of Monte Carlo, radiochromic film, and GZP6 treatment planning system" *Archive of oncology* 20(1-2): 1-5, 2012
- 60) MT Bahreyni Toossi, M Ghorbani, AA Mowlavi, A Hashemian, S Bayani Roodi, Meigooni "Application of a color scanner for ^{60}Co high dose rate brachytherapy dosimetry with EBT radiochromic film" *Radiol Oncol* 46(4): 363-369, 2012.
- 61) AA Mowlavi, MH Hadizadeh "Monte Carlo simulation of pulse pile-up effect in gamma spectrum of a PGNA system" *Nuclear Instruments and Methods A* 660: 104-107, 2011.
- 62) AA Mowlavi, MR Fornasier, M de Denaro "Calculation of energy deposition, photon and neutron production in proton therapy of thyroid gland using MCNPX" *Applied Radiation and Isotopes* 69: 122-125, 2011.
- 63) AA Mowlavi "Monte Carlo study to evaluate the paraffin cylinder dimensions for the surface effect correction" *Elixir Agriculture* 34: 2575-2576, 2011.

- 64) AA Mowlavi, MR Fornasier, M de Denaro **“Thyroid volume’s influence on energy deposition from ^{131}I calculated by Monte Carlo (MC) simulation”** *Radiology and Oncology* 34(2):143-146, 2011.
- 65) AA Mowlavi **“Monte Carlo Simulation Algorithm for Pileup Effect of Pulses in Gamma Spectroscopy and Pileup Distortion Calculation on ^{137}Cs Pulse Height Spectrum in NaI(Tl) Detector”** *Iranian Journal of Physics Research* 11(3): 54, 2011.
- 66) AA Mowlavi, M Yazdani **“Calculation of Isodose Curves for CCA and CCB Concave Eye applicators”** *International Journal of Modern Physics B* 25(29): 3905-3910, 2011.
- 67) MT Bahreyni Toossi, M Ghorbani, AA Mowlavi, M Taheri, M Layegh, Y Makhdoumi, A Soleimani Meigooni **“Air kerma strength characterization of a GZP6 Cobalt-60 brachytherapy source”** *Reports of Practical Oncology and Radiotherapy* 15: 190–194, 2010.
- 68) A Binesh, AA Mowlavi, S Mohammadi, P Parvaresh **“CORRELATION BETWEEN RADIUM AND RADON IN THE DRINKING WATER SAMPLES OF MASHHAD-IRAN”** *International Journal of Current Research* 11: 71-73, 2010.
- 69) AA Mowlavi, M Yazdani **“Dosimetry Parameters Determination of ^{169}Yb Brachytherapy Source Model X1267”** *Applied Physics Research* 2(1): 118-124, 2010.
- 70) AA Mowlavi, M Homaei, M Alipoor **“SRIM Code Use for the Evaluation of Optimum Proton Energy Interval for Thyroid Cancer Therapy”** *African Physical Review* 4(13): 107-111, 2010.
- 71) AA Mowlavi, A Binesh, H Aranshahi **“Application of Runge-Kutta Numerical Methods to Solve Schrodinger Equation for Hydrogen and Positronium Atoms”** *Research Journal of Applied Sciences* 5(5): 315-319, 2010.
- 72) A Binesh, AA Mowlavi, H Aranshahi **“Suggestion of Proper Boundary Conditions to Solve Schrodinger Equation for Different Potentials by Runge-Kutta Method”** *Research Journal of Applied Sciences* 5(6): 383-387, 2010.
- 73) A Binesh, S Mohammadi, AA Mowlavi, P Parvaresh **“Measuring Radon and Radium Concentrations in 120 samples of drinking water sources, springs and rivers of Shandiz, Zoshk and Abrdeh riogiond”** *Environmental Research Journal* 5(1):1-5, 2010.
- 74) H Arabshahi, AA Mowlavi, M Jafarizadeh **“Monte Carlo Simulation of Atom Displacement Damage in ZnO Crystal Structure by Fast Neutron Radiation Using MCNP Code”** *Journal of Modelling and Simulation of Systems* 1: 50-53, 2010.
- 75) A Binesh, AA Mowlavi **“Radon Concentration Measurement in the Some Water and Air of Mine in Nishabour Region at Iran”** *Archives of Applied Science Research* 2(1): 143-146, 2010.
- 76) AA Mowlavi, A Afzali, N Afzali, E Kashani **“Depth Dose Calculation of Holmium-166 for Different Shape Source by VARSKIN3 Code”** *Iran J Nucl Med* 18(1): 32-36, 2010.
- 77) AA Mowlavi, A Binesh, H Arabshahi **“Radon and Radium Measurement in Drinkables Water Supplies of Shirvan Region in Iran by Prassi System”** *Archives of Applied Science Research* 2(1) 23-27, 2010.
- 78) AA Mowlavi, A Afzali, N Afzali **“Adding ^{166}Ho data to VARSKIN2 code and dose calculation to human skin”** *Iranian Journal of Radiation Research* 8(1): 45-49, 2010.

- 79) A Binesh, AA Mowlavi, S Mohammadi, P Parvaresh "**Estimation of the radiation dose from radon ingestion and inhalation in drinking water sources of Mashhad, Iran**" *International Journal of Radiation Research* 10(1): 37-41, 2012.
- 80) AA Mowlavi, M Yazdani "**Dose distribution calculation in skin cancer treatment using Leipzig applicator**" *International Journal of Modern Physics B* 24(5): 599-604 2010.
- 81) AA Mowlavi, M Yazdani "**Calculation of Isodose Curves for CCA and CCB Concave Eye applicators**" *International Journal of Modern Physics B* 33(1): 23-28, 2010.
- 82) AA Mowlavi, M Yazdani "**Calculation of Displacement Atoms Damage on NaI(Tl) Crystals by Neutron**" *International Journal of Pure and Applied Physics* 6(1):81-88, 2010.
- 83) AA Molavi, A Binesh, A Shabhrami "**Radon Measurement in the drinkable Water Sources of Ramsar Region in Iran**" *Isotopes in Environmental and Health Studies* 45(3): 269-272, 2009.
- 84) AA Mowlavi, M Yazdani "**Monte Carlo simulation of soil moisture effects on antitank landmines detection by neutron backscattering technique**" *International Journal of Modern Physics B* 23(32):5907-5913, 2009.
- 85) AA Mowlavi, M Yazdani "**Dose distribution calculation in skin cancer treatment using Leipzig applicator**" *International Journal of Modern Physics B* 32(4): 1-7, 2009.
- 86) AA Mowlavi, M Yazdani "**Monte Carlo simulation of two ^{106}Ru eye plaques in a new mathematical human eye model**" *Iranian Journal of Nuclear Medicine* 16(2): 16-22, 2009.
- 87) AA Mowlavi, H Sadoghi Yazdi, A Arghiani, J Roohi, R Koohi, A Alizadeh "**Surface Effect Correction of Moisture Determination by Neutron Probe Using PSO Technique and MCNP**" *International Journal of Computational Methods* 6(2): 247-255, 2009.
- 88) H Arabshahi, AA Mowlavi "**Low-Field Electron Transport Properties in Zincblende and Wurtzite GaN Structures Using an Iteration Model for Solving Boltzmann Equation**" *Modern Physics Letters B* 23(10): 1-8, 2009.
- 89) AA Mowlavi, S Mohammadi "**Calculation of Atom Displacement Damage in HPGe Crystal by Fast Neutron**" *African Physical Review* 3(4):21-23, 2009.
- 90) AA Mowlavi, A Binesh, A Shabhrami, R Izadi "**Measurement of Radon and Radium in the water sources of Kalardasht region, Iran**" *Asian Journal of Experimental Sciences* 23(3): 385-388, 2009.
- 91) AA Mowlavi, M de Denaro, MR Fornasier, A Binesh "**Monte Carlo Simulation of Intrinsic Count Rate Performance for Scintillation Gamma Camera**" *WC 2009, IFMBE Proceedings* 25: 209-211, 2009.
- 92) AA Mowlavi, N Afzali, A Afzali "**Dose Calculation of ^{166}Ho Therapy Using VARSKIN2 Code**" *WC 2009, IFMBE Proceedings* 25: 552-555, 2009.
- 93) A Binesh, S Mohammadi, AA Mowlavi, P Parvaresh "**Radon Measurement in drinking water samples of Mashhad city in Iran**" *WC 2009, IFMBE Proceedings* 25: 245-247, 2009.

- 94) A Binesh, AA Mowlavi, S Mohammadi, P Parvaresh **"Indoor Radon Measurement in some Apartments of Mashhad City (Iran)"** *WC 2009, IFMBE Proceedings* 25: 189-190, 2009
- 95) AA Mowlavi, F Copardo, M Severgnini **"Monte Carlo and experimental relative dose determination for a ^{192}Ir source in water phantom"** *Iranian Journal of Radiation Research* 6(1): 37-42, 2008.
- 96) M Yazdani, AA Mowlavi **"Determining TG-43 brachytherapy dosimetry parameters and dose distribution for the ^{131}Cs source model CS-1"** *Iranian Journal of Radiation Research* 5(2): 85-90, 2007.
- 97) A Binesh, AA Mowlavi, E Mokhtari-Njad **"Dose calculation due to a ^{125}I source model 6711 and dosimetry parameters determination in the water and soft tissue phantoms"** *Iranian Journal of Medical Physics* 5(12): 6-16, 2007.
- 98) AA Mowlavi **"The Results of a FORTRAN Code for Glandular Dose Calculation in Mammography Using Sobol-Wu Parameters"** *Journal of Medical Sciences of Tehran University* 43(2): 23-28, 2007.
- 99) AA Mowlavi, A Binesh, M Rejaei **"Dose Calculation in the Water Phantom for $^{90}\text{Sr}/^{90}\text{Y}$ Beta Particles Using MCNP Code"** *IFMBE Proceedings*, Springer 14(3): 2028-2029, 2006.
- 100) AA Molavi, A Binesh **"Radon Concentration Measurement in the some Water Sources of Mashhad Region in Iran"** *IFMBE Proceedings*, Springer 14(1): 498-499, 2006.
- 101) AA Molavi, A Binesh, M Moslehitabar **"Monte Carlo Dose Distribution Calculation of ^{103}Pd Source in Water and Soft Tissue Phantoms Using MCNP"** *IFMBE Proceedings*, Springe 14(3): 2030-2031, 2006.
- 102) AA Mowlavi, AR Binesh **"The Calculation of Absorb Dose from ^{131}I Radioactive Source in Thyroid with Using MCNP Code for Spherical and Cylindrical Fields"** *Rafsanjan Medical Journal* 5(3): 6-10, 2006.
- 103) AA Mowlavi **"Determination of Average Glandular Dose in Mammography for Rh-Rh Mammogram Using Sobol -Wu Parameters by FORTRAN program"** *Iranian Journal of Medical Physics* 5(1): 47-52, 2006.
- 104) AA Mowlavi, M de Denaro, MR Fornasier , A Binesh **"Monte Carlo Simulation of Intrinsic Count Rate Performance of a Scintillation Camera for Diagnostic Images"** *Applied Radiation and Isotopes* 64(3): 390-395, 2006.
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- 110) MH Hadizadeh, AA Mowlavi, M Thompson, H Miri "**Proper Shielding for NaI(Tl) Detectors in Combined Neutron-Gamma Fields**" *Nuclear Instruments and Methods A* 522(3): 447-454, 2004.
- 111) AA Mowlavi, R Koohi-Fayegh "**Determination of 4.438 MeV γ -Ray to Neutron Emission Ratio from a ^{241}Am - ^9Be Neutron Source**" *Applied Radiation and Isotopes* 60(6): 959-962, 2004.
- 112) AA Mowlavi, AR Binesh, R Koohi-Fayegh "**Measuring of Light Efficiency and Energy Resolution of NaI(Tl) Detector Variation to Temperature**" *Journal of Sciences Ferdowsi University of Mashhad* 4(2): 1-10, 2002.
- 113) AA Mowlavi, MH Hadizadeh "**Fast Neutron Dosimetry in an in Vivo Neutron Activation Facility**" *Iranian Journal of Physics Research* 2(2): 113-121, 2000.

Some Paper Presentation in Conferences:

- 1) S Abdollahi, AA Mowlavi, MHH Yazdi, S Ceberg, MC Aznar, F Varshoe Tabrizi, R Salek, A Ghodsi, F Jamali "**Surface guided radiotherapy in Deep Inspiration Breath Hold for toxicity management in left-sided breast cancer irradiation: implementation and first clinical experience in Iran**" AOCMP2022, Taipei Taiwan, 10-12 December 2022.
- 2) Z Danaei, AA Mowlavi, HR Baghani "**Absorbed dose assessment from decay chain of radon gas in human respiratory system: A Monte Carlo stud**" World Congress on Medical Physics and Biomedical Engineering, Prague Czech, 3-8 June 2018.
- 3) AA Mowlavi, MR Fornasier, M de Denaro "**Indoor radon concentration in the living places of Mashhad**" WCEB2, Taiyuan China, 24-26 September 2012.
- 4) AA Mowlavi "**Suggestion of Proper Boundary Conditions to Solving Schrodinger Equation Numerically**" The VIIth International Conference Quantum Theory and Symmetries, Prague, 2011
- 5) AA Mowlavi, MR Fornasier, M de Denaro "**Thyroid volume's influence on energy deposition from ^{131}I calculated by MC simulation**" AISCMP 2010, Ljubljana, Slovenia, 2010.
- 6) AA Mowlavi, P Bregent, M de Denaro, A Taibi "**X-ray Spectra Calculation of the Mammography System with Tungsten Target by MCNP Code**" AISCMP 2010, Ljubljana, Slovenia, 2010.
- 7) A Mowlavi, M de Denaro, MR Fornasier, A Binesh "**Monte Carlo Simulation of Intrinsic Count Rate Performance for Scintillation Gamma Camera**" WC2009 Munich, 2009.
- 8) AA Mowlavi, N Afzali, A Afzali "**Dose Calculation of Ho-166 Therapy Using VARSKIN2 Code**" WC2009 Munich, 2009.

- 9) A Binesh, S Mohammadi, AA Mowlavi, P Parvaresh **"Radon Measurement in drinking water samples of Mashhad city in Iran"** WC2009 Munich, 2009.
- 10) A Binesh, AA Mowlavi, S Mohammadi, P Parvaresh **"Indoor Radon Measurement in some Apartments of Mashhad City (Iran)"** WC2009 Munich, 2009.
- 11) AA Mowlavi, S Mohammadi, H Arabshahi **"Proper Proton Energy Evaluation for Thyroid Cancer Therapy Using SRIM2008 Code"** ICMPRPR 2k9, India, 2009.
- 12) AA Mowlavi, A Binesh, S Mohammadi, MB Sarboland **"Measurement of heavy radioactive pollution: radon and radium in drinking water samples of Mashhad"**, ICMPRPR 2k9, India, 2009.
- 13) AA Mowlavi, A Moghadsi, A Binesh **"Radon and radium measurement in drinkables water supplies of Shirvan region in Iran by PRASSI systemm"**, European Conference-Medical Physics and Engineering – 110 Years after the Discovery of Polonium and Radium, Krakow, Poland, 2008.
- 14) AA Mowlavi, R Kohhi-Fayegh **"Unfolding of gamma spectrum emitted form ^{241}Am - ^9Be source and evaluation of neutron to 4.438 MeV gamma ray"**, 14th National Conference of Iranian Nuclear Association, Yazd, Iran, 20-22 February 2008.
- 15) AA Mowlavi, R Kohhi-Fayegh **"Experimental measurement of MCA response to pile up of tow pulses"**, 14th National Conference of Iranian Nuclear Association, Yazd, Iran, 20-22 February 2008.
- 16) AA Mowlavi, A Afzalifar, A Binesh **"Deep dose calculation of beta sources by VARSKIN2 code"**, 14th National Conference of Iranian Nuclear Association, Yazd, Iran, 20-22 February 2008.
- 17) AA Mowlavi, S Moahmmadi **"Evaluation of radiation damage in HPGe crystal by neutron"**, 14th National Conference of Iranian Nuclear Association, Yazd, Iran, 20-22 February 2008.
- 18) AA Mowlavi, F Copardo, M Severgnini, A Binesh **"Monte Carlo calculation of relative dose distribution and dosimetry parameters for and ^{192}Ir Source in a Water Phantom Using MCNP4C "**, ICNROMP, Vellore, India, 7-9 Feb 2008.
- 19) AA Mowlavi, M Yazdani **"Monte Carlo calculation of the dose distributions of two ^{106}Ru eye applicators in soft tissue phantom "**, ICNROMP, Vellore, India, 7-9 Feb 2008.
- 20) AA Mowlavi, A Binesh, M Kholghi **"Radon and Radium measurement in the water source of Sistan region and dose evaluation"** 2nd meeting of physics at Payam noor university, Oromieh, Iran, 5-7 July 2007.
- 21) AA Mowlavi, M Yazdani **"Evaluation of crystal damage in NaI(Tl) detector by neutron irradiation using Kinchin–Pease model and MCNP code"** 2nd meeting of physics at Payam noor university, Oromieh, Iran, 5-7 July 2007.
- 22) AA Mowlavi, M Yazdani **"X-ray spectra calculation in different angels of Mo target using MCNP code"** 2nd meeting of physics at Payam noor university, Oromieh, Iran, 5-7 July 2007.
- 23) AA Mowlavi, A Binesh, A Farzane-kord **"Application of Runge-Kutta method in solving of Schrödinger equation for Hydrogen atom"** 1st meeting of mathematics of Payam noor university, Kish, Iran, 17-19 May 2007.

- 24) AA Mowlavi, A Binesh, E Mokhtarinejad **"Monte Carlo Dose Distribution Calculation of a ^{125}I Source in Water Phantom"** 7th national Conference of Medical Physics, Ahvaz, Iran, 2007.
- 25) AA Mowlavi, A Binesh **"A New Simple Teaching Method for Obtaining Maxima and Minima in Applied Mathematics Problems without Using Calculus"**, EARCOME4, Penang, Malaysia, 2007.
- 26) AA Mowlavi, A Binesh, A Shabhrani **"Indoor Radon Measurement in the Air of some Apartments in Mashhad after 9 Cold Days, Winter 2006"** 1st International Conference of Human, Life and Radiation; Rafsanjan, October 2006
- 27) AA Mowlavi, A Shabhrani, A Binesh **"Measurement of Radon Concentration in the Water Sources of Kraldasht-Kaleov, Iran"** 1st International Conference of Human, Life and Radiation; Rafsanjan, Iran, October 2006
- 28) AA Mowlavi, A Binesh **"Radon Concentration Measurement in the some Water Sources of Mashhad Region in Iran"** WC2006, Seoul, Korea, 2006.
- 29) AA Mowlavi, A Binesh, M Rejaei **"Dose Calculation in the Water Phantom for $^{90}\text{Sr}/^{90}\text{Y}$ Beta Particles Using MCNP Code"**, WC2006, Seoul, Korea, 2006.
- 30) A Binesh, AA Molavi, H Moslehitabar **"Monte Carlo Dose Distribution Calculation of ^{103}Pd Source in Water and Soft Tissue Phantoms Using MCNP"**, WC2006, Seoul, Korea, 2006.
- 31) S Jahanfar, AA Mowlavi **"Monte Carlo simulation of traffic problem"**, Annual conference of Physics, Shahroud, Iran, September 2006
- 32) AA Mowlavi, R Koochi-Fayegh, A Alizadeh **"Monte Carlo Simulation of Moisture Measurement by Neutron Meter"**, 2nd Environmental Physics Conference, 18-22 February 2006, Alexandria, Egypt.
- 33) AA Mowlavi, R Izadi **"X-ray Spectra Calculation for different Target-Filter of Mammograms Using MCNP Code"**, 12th National Conference of Iranian Nuclear Association, Mashhad, Iran, 22-24 February 2006.
- 34) AA Mowlavi, F Copardo, R Koochi-Fayegh **"Monte Carlo Simulation of Dose Distribution a ^{192}Ir Source in Water Phantom Using MCNP code"**, 1st international conference for biological and medical physics, Al-Ein, EUA, 2005.
- 35) AA Mowlavi, R Izadi, R Koochi-Fayegh **"Monte Carlo Calculation of Intrinsic Efficiency of NaI(Tl) Detector Using MCNP"**, 11th National Conference of Iranian Nuclear Association, Boushehr, Iran, 23-25 February 2005.
- 36) AA Mowlavi, F Cupardo, R Koochi-Fayegh **"Monte Carlo Simulation of Dose Rate Distributions in ^{192}Ir Brachytherapy Using MCNP code"**, 10th National Conference of Iranian Nuclear Association, Arak, Iran, 24-25 February 2004.
- 37) AA Mowlavi, AR Binesh **"The Calculation of Absorb Dose from ^{131}I Radioactive Source in Thyroid with Using MCNP Code"**, Medical Physics World Conference WC2003, Sydney, Australia, 24-29 August 2003.
- 38) AA Mowlavi **"Medical Applications of Nuclear Radiations"**, Student Physics conference, Sabzevar, Iran, 2000.
- 39) AA Mowlavi and MH Hadizadeh **"A Suitable NaI(Tl) Shielding in a Mixed Neutron-Gamma Field"**, 10th Annual Physics Conference, Babolsar, Iran, 1999.

- 40) AA Mowlavi, R Koochi-Fayegh, A Binesh "**Variation of the Light Yield and Energy Resolution of NaI Detector with Temperature**", 4th National Conference of Iranian Nuclear Association, Yazd, Iran, 1999
- 41) AA Mowlavi and MH Hadizadeh "**Fast Neutron Dosimetry In Vivo Neutron Activation Facility**", Annual Physics Conference, Kerman, Iran, 1998.
- 42) AA Mowlavi and MH Hadizadeh "**Neutron and Body**", 3rd National Conference of Iranian Nuclear Association, Mashhad, Iran, 1997
- 43) AA Mowlavi and MH Hadizadeh "**Measurement of thermal Neutron Dose with ³He Detector**" Annual Physics Conference, Kashan, Iran, 1997.

Books :

Author

- [1] Chapter 7 from Applications of Monte Carlo Method in Science and Engineering, InTech Open in Vienna, 2011.
- [2] **Application of Computer in Physics**, Ali Asghar Mowlavi and Koroush Javidan, published by Tarbiat Moallem University press, 2006, 2009, Sabzevar, Iran.

Translator

- 1) **Vibration**, E Tampion, translated to Persian by Ali Asghar Mowlavi and Alireza Binesh, Nama Publisher Company, 2007, Tehran, Iran.

Workshops and Summer Schools:

- **Advance Dosimetry Workshop**, 21-22 April 2010, Tabiat Moallem University of Sabzevar, Iran.
- **Training of MCNP Code Workshop**, December 2008, Mashhad Medical Sciences University (Lecturer and Organizer).
- **Nuclear Structure and Decay Data: Theory and Evaluation**, 20 February - 3 March 2006, ICTP, Trieste, Italy.
- **Dosimetry Workshop**, 23-29 January 2003, Karaj, Iran.
- **The College on Medical Physics**, 2-27 September 2002, ICTP, Trieste, Italy
- **Radiation Measurement & Detection**, 10-24 September 2001, Mashhad, Iran. (Also I collaborated in experimental section)
- **MCNP Training Workshop**, 7-22 February 1999, Karaj, Iran.

Supervising/Advising:

- Supervising or advising 36 MSc students and 14 PhD students at Faculty of Science, Hakim Sabzevari University, Sabzevar, Iran – (2006-present).
- Co-supervising or supervising 13 MSc students and 8 PhD students at University of Turin, Ferdowsi University of Mashhad, Payam Noor University, Yazd University, Neyshabur University, Urmia University, TSR Branch of Islamic Azad University, Tafresh University and Shahrood University of Technology (2004-present).

Teaching:

In BSc level: General Physics, Physics with Health Science Applications, Radiation Dosimetry; Radiation Detection and Measurements; Numerical and Computational Physics, Electromagnetics, Mathematical Physics, and Quantum Mechanics.

In MSc level: Applied Computational Physics, Electrodynamics, Monte Carlo Simulation, Radiation Dosimetry and Radiation Detection.

In PhD level: Advance Monte Carlo simulation and applications, Advance Radiation Spectroscopy, and Special Topics in Medical Physics.