Faraz Kalantari Mahmoudabadi, Ph.D.

Assistant Professor of Medical Physics
Department of Radiation Oncology
University of Arkansas for Medical Sciences
Little Rock, AR 72205

Cell: **(832)-314-2145**
Tel: **(501)-526-7022**
Email: **Fkalantari@uams.edu**

EDUCATION

Ph.D. in Medical Physics 2007 – 2012
Tarbiat Modares University, Tehran, Iran

M.Sc. in Medical Physics 2004 – 2007
Tarbiat Modares University, Tehran, Iran

B.Sc. In Atomic and Molecular Physics 2002 – 2006
Kharazmi University, Tehran, Iran

TRAINING & EMPLOYMENT

Assistant Professor of Medical Physics **07/2019 – now**
University of Arkansas for Medical Sciences (UAMS) – Department of Radiation Oncology

Medical Physics Residency (CAMPEP-Accredited) 07/2016 – 06/2019
University of Texas Southwestern Medical Center – Department of Radiation Oncology

Postdoctoral Research Fellow 09/2014 – 06/2016
University of Texas Southwestern Medical Center – Department of Radiation Oncology

Postdoctoral Research Fellow 01/2013 – 08/2014
University of Houston – Department of Biomedical Engineering

Medical Physicist and Instructor 09/2009 – 12/2012
Tehran University of Medical Sciences – Department of Nuclear Medicine

CERTIFICATIONS

American Board of Radiology (ABR) Certification in Therapeutic Physics Part 1 & 2 Since 2019

Temporary Medical Physicist License, State of Texas 04/2017-present

CLINICAL EXPERIENCE

Acceptance and Commissioning

- Commissioning of Varian Truebeam and Elekta Versa HD LINACs
- Accuray TOMO physicist
- Eclipse TPS commissioning
- Eclipse electron Monte Carlo algorithm commissioning
- Acceptance and commissioning of ExacTrac X-ray monitoring system
- BrachyVision treatment planning system V15.5
- Participated in acceptance and commissioning of Vitesse treatment planning system for prostate

HDR brachytherapy
- Performed commissioning of a head shield for TSE treatment
- Performed acceptance of new Ir-192 source from Varian for HDR

Machine and Patient-specific Quality Assurance (QA)
- Performed weekly, monthly and annual QA for Varian 2100 and Truebeam LINAC
- Performed weekly, monthly and annual QA for Elekta Agility and Versa HD LINACs
- Performed monthly QA for Philips Big-Bore CT simulator and Airo mobile intraoperative CT
- Performed daily and monthly QA for Leksell Gamma Knife ICON
- Performed monthly QA for Xstrahl 150 superficial X-ray system
- Performed monthly QA for Philips mobile x-ray unit
- Performed machine output verification with IROC TLD measurement for Elekta VersaHD
- Designed and performed quarterly QA for prostate brachytherapy ultrasound following TG128
- Performed patient-specific IMRT/SBRT QA using film & ion chamber measurement
- Performed patient-specific IMRT/SBRT QA using MobiusFx
- Supervised patient-specific IMRT/SBRT QA practices and solved QA issues as on-call resident
- Performed in-vivo patient-specific dosimetry with OSLD measurement
- Prepared and performed IMRT QA plans for MLC and Iris Cyberknife treatments

Treatment planning
- 3D, IMRT, and VMAT planning with Eclipse treatment planning system
- SBRT 3D non-coplanar or VMAT treatment planning for lung, prostate, liver and spine with Eclipse treatment planning system
- GYN brachytherapy treatment planning for Tandem and Ovoid, Cylinder, Syed with BrachyVision treatment planning system
- Treatment planning for prostate LDR brachytherapy with Variseed treatment planning system
- Cyberknife Treatment planning (Accuray Precision 1.1.1.1) with Multiplan TPS
- HDR prostate treatment planning with Vitesse TPS

HDR Brachytherapy
- Participated in acceptance and commissioning of Brachyvision V15.5
- Performed daily and patient-specific HDR brachytherapy QA for Varian VariSource iX afterloader
- Performed Ir-192 source exchange for Varian VariSource iX afterloader
- Performed HDR treatment planning and treatment with Cylinders, Tandem and Ovoid, Syed, Keloid applicators (For more than 50 patients)
- Performed prostate HDR planning and treatment

LDR Brachytherapy
- Performed transrectal ultrasound guided prostate LDR brachytherapy, including:
- Volume study
- Ultrasound/MRI registration
- Pre-operative planning using Varian Variseed treatment planning system
- Seed acceptance and calibration for I-125, Pd-103, Cs-131 seeds
- Intra-operative real-time planning with Varian Variseed treatment planning system
- Seed implant assistance and radiation survey
- CT-based post-operative plans with Variseed treatment planning system
- Participated in I-125 brain seed implant dosimetry and treatment

- Performed P-32 dose calibration and dosimetry

Routine Physicist of the Day (POD) Duty

- Routinely performed initial, weekly and final physics chart checks using MOSAIQ record and verification system (under supervision of POD)

Other Procedures

- Routinely performed total body irradiation setup, simulation, planning, compensator and lung block construction, treatment, and OSLD-based in-vivo dosimetry for single/multi-fraction standing TBI and stretcher TBI
- Routinely performed total skin electron therapy setup, simulation, planning, shielding, treatment
- Performed planning for Xstrahl 150 superficial treatment
- Routinely performed OSLD-based patient in-vivo dosimetry
- Routinely performed electron cutout output factor measurement
- Routinely performed patient-specific 3D bolus fabrication for treatment using 3D printer
- Routinely performed ion chamber/electrometer cross-calibration
- Routinely performed film calibration for patient specific QA
- Developed patient specific LINAC IMRT QA guideline document for UTSW QA team
- Developed patient specific Cyberknife IMRT QA instruction for UTSW QA team

Nuclear Medicine

- Performed elution (milking) of 99Mo-99mTc radionuclide generator
- Performed radiopharmaceuticals preparing and dispensing in hot lab
- Performed daily, weekly, monthly and annual QC for AIDAC/Philips SPECT
- Performed daily, weekly, monthly and annual QC for Siemens SymbiaT SPECT/CT
- Performed daily, weekly and monthly QC tests for Siemens Biograph Truepoint PET/CT
- Participated in acceptance and commissioning of Eclipse HP cyclotron for F-18 production
- Designed optimum imaging protocols for 67Ga, 201Tl, 99mTc and 131I
- Designed organ-specific optimum image reconstruction for SPECT images

TEACHING EXPERIENCE

Tarbiat Modares University, Department of Medical Physics, Tehran, Iran

- Analytic and Iterative Image Reconstruction in Nuclear Medicine (Graduate level, 2011 and 2012)
- Monte Carlo Simulation in Nuclear Medicine (Graduate level, 2012)
- Medical Image Processing (Graduate level, 2010- 2012)

Tehran University of Medical Sciences, Department of Nuclear Medicine (Shariati Hospital)

- Nuclear Medicine Instrumentation (For Nuclear Medicine Residents 2010, 2011 and 2012)
- Nuclear Medicine Imaging and Image Processing (For Nuclear Medicine Residents 2010- 2012)
- Quality Control of Nuclear Medicine Imaging Systems (For Nuclear Medicine Residents 2010, 2011 and 2012)

Enghelab-e Eslami Technical College, Department of Mathematics

- Calculus and Algebra I and II (2005-2007)
- Probability and Statistics (2007)

Training junior residents: 2017-present

TBI/TSE treatment, IMRT patient-specific QA, monthly QA, electron cutout factor

measurement, ion chamber/electrometer cross calibration, in-vivo dosimetry, Xstrahl superficial planning, film/OSLD calibration, 3D bolus printing

MENTORING AND LEADERSHIP EXPERIENCE

- **PhD Advisor:** Tarbiat Modares University, Tehran, Iran **2018-present**
  Project title: Design and performance evaluation of the gamma camera with the slit-slat collimator for prompt gamma imaging verification and quantifying dose distribution in proton therapy: Monte Carlo simulation study
- **MSc Advisor**: Tarbiat Modares University, Tehran, Iran **2015-2017**
  Project title: Quantification and correction of respiratory motion-induced errors in multi-pinhole animal SPECT using motion vectors during image reconstruction
- **MSc Advisor**: Tehran University of Medical Sciences, Tehran, Iran **2013-2016**
  Project title: Image-based patient specific internal dosimetry in nuclear medicine (Results have been published in four peer reviewed journal papers and presented as 3 oral presentation at AAPM)
- **MSc Advisor**: Shahid Beheshti University, Tehran, Iran **2010-2013**
  Project title: Assessment of the impact of applying attenuation correction on the accuracy of activity recovery in Tc99m-ECD brain SPECT of healthy subject using Statistical Parametric Mapping (SPM)
- **PI for a National Grant**: Tehran University of Medical Sciences, Tehran, Iran **2011-2012**
  Project title: The influence of resolution recovery in brain SPECT images
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HONORS AND AWARDS

- Scholarship for Prostate HDR/LDR Brachytherapy Workshop, MD Anderson Cancer Center 2018
- Selected for a competitive postdoc position at UT Southwestern 2014
- Offered a competitive postdoc position at University of Houston 2013
- Travel award, World Conference of Medical Physics and BME, Beijing, China. 2012
- The recipient of a Trainee award, IEEE NSS-MIC, Valencia, Spain. 2011
- Best presentation award in 15th Iranian Congress of Nuclear Medicine, Tehran, Iran 2011
- Trainee grant for 4 weeks, European School of Medical Physics (ESMP) CERN. 2010
- Trainee grant for 2 weeks, European School of Medical Physics (ESMP) CERN. 2008
- The recipient of a Trainee award, IEEE NSS-MIC, Dresden, Germany. 2007
- Ranked first in national Ph.D. admission exam (Top 1%) 2007
- Ranked 3rd in national M.Sc. admission exam (Top 1%) 2004

RESEARCH PROJECTS

Medical Physics Resident 07/2016-present

University of Texas Southwestern Medical Center – Department of Radiation Oncology

- 4D-CT Image Reconstruction for 4D-PET Motion and Attenuation Correction: Developed a motion estimation method using CT projection data to be used for deforming CT images to match 4D-PET images for attenuation and motion correction that is a necessary step for PET image quantification. ***The results of this project were published in two peer-reviewed journal papers and presented as two oral presentations at AAPMs 2016 and 2017.***

- Uncertainty Analysis of UTSW patient database: Analyzed more than 1200 patient setup errors before treatment, after image-guidance setup and during the treatment using intra-scan for SBRT patients.

Postdoctoral research fellow 10/2014-06/2016

University of Texas Southwestern Medical Center – Department of Radiation Oncology

- Respiratory motion correction in 4D-PET by simultaneous motion estimation and image reconstruction (SMEIR): Developed an statistical 4D-EM reconstruction algorithm able to estimate deformation vector fields (DVFs) using 4D-PET projection data to be used for motion correction. ***The results of this project were published in PMB and presented at AAPM 2015 as a talk.***

Postdoctoral research fellow 01/2013-08/2014

University of Houston-Department of Biomedical Engineering

- Using Human Model Observers to Optimize design of a Novel Multi-Pinhole (MPH) SPECT for Prostate Imaging: Developed a fast ray-tracing method for generating MPH projections from a digital XCAT phantom Developed a kernel-based EM reconstruction method for MPH SPECT images. **Presented at SPIE Medical Imaging and IEEE MIC Conference in 2014.**

Ph.D. Student 09/2007-09/2012

Tarbiat Modares University, Tehran, Iran – Department of Medical Physics

- Model-Based Resolution Recovery in SPECT imaging. Developed a 3D-OSEM image reconstruction algorithm with distance-dependent system response modeling to improve the Spatial Resolution of SPECT Images. ***The results of this project were published in three peer-reviewed nuclear medicine journals and won a national grant for brain SPECT.***
- Developed a fast MC code for Scatter Estimation and Correction during 3D-SPECT Image Reconstruction. Developed a fast scatter estimation algorithm to be coupled with an OSEM image reconstruction algorithm for scatter correction. ***The results of this project were presented at AAPM 2017 as a talk.***
- Model-Based Attenuation Correction in SPECT images. Developed an OSEM algorithm for SPECT image reconstruction with heterogeneous attenuation correction capability. ***The results of this project were published in two peer-reviewed nuclear medicine journals.***

M.Sc. Student 09/2004-07/2007

Tarbiat Modares University, Tehran, Iran – Department of Medical Physics

- Simultaneous dual isotope SPECT imaging
- Optimized energy window setting for Tl-201 Cardiac SPECT imaging

SELECTED CLINICAL PROJECTS & TASKS

- Electron Monte Carlo Commissioning on Eclipse TPS: Fabrication of several electron cutout and measuring profiles and PDDs, comparing to other institutes and MC results and modeling in TPS.
- TSE head and neck shield design to preserve patient hair: Making a frame and hanger, lead wrapped head shield with neck strip, OSLD measurement of dose on a head phantom.
- Prostate intra-fraction motion tracking during SBRT: Scanning phantom with fiducial markers, defining ROIs around the fiducials in Eclipse, tracking the fiducials during treatment on a True Beam Linac by on the fly KV imaging.

- Designing a TG-142 compliant test for True Beam 6DOF IGRT test and testing the ExacTrac Isocenter to treatment isocenter: Scanning the 6DOF isocube with tilted base and leveled isocube as a perfect match for CBCT based IGRT and aligning it to ExacTrac iso.
- Designing a template plan for TSE treatment in Eclipse.
- Designing TG-142 compliant RP plans for monthly Linac QA

PUBLICATIONS

Peer-reviewed Journal Papers:

1. G Omyan, S Gholami, AG Zad, M Severgnini, F Longo, **F Kalantari**. Monte Carlo simulation and analytical calculation methods to investigate the potential of nanoparticles for INTRABEAM IORT machine. 2020Nanomedicine: *Nanotechnology, Biology and Medicine*. 30, 102288 (1-9)
2. M Naseri, H Rajabi, J Wang, M Abbasi, **F Kalantari**. Simultaneous respiratory motion correction and image reconstruction in 4D-multi pinhole small animal SPECT. 2019 *Medical physics* 46 (11), 5047-5054
3. M Eftekhari, M Abbasi, A Tarafdari, A Emami-Ardekani, S Farzanefar, **F Kalantari**, Babak Fallahi, Armaghan Fard-Esfahani, Davood Beiki, Maryam Naseri, Mohsen Saghari. Automated Interpretation of Myocardial Perfusion Images with Multilayer Perceptron Network as a Decision Support System. 2018 *Journal of Medical Imaging and Health Informatics* 8 (9), 1844-1849.
4. D Shrestha, N Qin, Y Zhang, **F Kalantari**, S Niu, X Jia, A Pompos, S Jiang and J Wang. Iterative reconstruction with boundary detection for carbon ion computed tomography. 2018 *Physics in Medicine & Biology* 63 (5), 055002
5. S Shahzadeh, S Gholami, SMR Aghamiri, H Mahani, M Nabavi, **F Kalantari**. Evaluation of normal lung tissue complication probability in gated and conventional radiotherapy using the 4D XCAT digital phantom. 2018 *Computers in biology and medicine* 97, 21-29.
6. M Fallahpoor, M Abbasi, AA Parach, A Bitarafan Rajabi, **F Kalantari**. Image-based versus atlas-based patient-specific S-value assessment for Samarium-153 EDTMP cancer palliative care: A short study. *Ir Journal of Nuclear Medicine* 26 (2), 76-81.
7. Y Zhong, **F Kalantari**, J Wang. Quantitative 4D-PET Reconstruction for Small Animal Using SMEIR-reconstructed 4D-CBCT. *2018 IEEE Trans. Rad. Plasma Med Sci*
8. M Fallahpoor, M Abbasi, AA Parach, **F Kalantari**. Internal dosimetry for radioembolization therapy with Yttrium-90 microspheres. 2017 *Journal of Applied Clinical Medical Physics* 18(2), 176-180
9. M Fallahpoor, M Abbasi, AA Parach, **F Kalantari**. The importance of BMI in dosimetry of 153 Sm-EDTMP bone pain palliation therapy: A Monte Carlo study *Applied Radiation and Isotopes 2017 124, 1-6*
10. **F Kalantari**, J Wang. Attenuation correction in 4D-PET using a single-phase attenuation map and rigidity-adaptive deformable registration. *Med. Phys. 2017 44 (2), 522-532.*
11. SH Razavi, **F Kalantari**, M Bagheri, et al. Characterization of low, medium and high energy collimators for common isotopes in nuclear medicine: A Monte Carlo study. *Iran J Nucl Med 2017 25 (2), 100-4*
12. **F Kalantari**, T Li, M Jin, J Wang. Respiratory motion correction in 4D-PET by simultaneous motion estimation and image reconstruction (SMEIR). *Phys. Med. Biol.* 2016; 61 (15), 5639-5661.
13. M Fallahpoor, M Abbasi, AA Parach, A Sen, **F Kalantari**. Practical nuclear medicine and utility of phantoms for internal dosimetry: XCAT compaed with Zubal. *Rad. Protection Dosimetry* 2016 *174 (2), 191-197.*

14. A Sen, **F Kalantari**, H C Gifford. Task equivalence for medical and human observer comparisons in SPECT localization studies. *IEEE Trans. Nucl. Sci*. 2016; 63 (3), 1426 - 1434
15. S Oloomi, HN Eskandari, SR Zakavi, P Knoll, **F Kalantari**, MH Saffar. A New Approach for Scatter Removal and Attenuation Compensation from SPECT/CT Images. IJBMS 2013; 16 (11), 1181 – 1189.
16. **F. Kalantari**, H. Rajabi, M. Saghari. Quantification and reduction of collimator-detector response effect in SPECT by applying system model during iterative image reconstruction: A simulation study. *Nucl Med Commun* 2012; 33(3):228-238.
17. **F. Kalantari**, H. Rajabi, MR. Ay, SK Razavi, A Fard-Esfahani, D Beiki, M Eftekhari, B Fallahi, L Sadeghian, A Emami-Ardekani. The Influence of resolution recovery during image reconstruction on quantitative ^{99m}TC-ECD brain SPET imaging. *Hell J Nucl Med* 2012; 15(2): 91-96.
18. **F. Kalantari**, H. Rajabi, M. Saghari. Quantification and Reduction of attenuation related artifacts in SPET by applying attenuation model during iterative image reconstruction: A Monte Carlo study. *Hell J Nucl Med* 2011; 14(3): 278-283.
19. F. Vedaei, AR Kamali-Asl, **F. Kalantari**, M Ansari, MR Ay. Assessment of the impact of applying attenuation correction on the accuracy of activity recovery in Tc99m-ECD brain SPECT of healthy subject using Statistical Parametric Mapping (SPM). *Iran J Nucl Med* 2011; 19(2):52-59.
20. **F. Kalantari**, H. Rajabi, M. Saghari, AR Emami-Ardekani. A model based, anatomy dependent method for ultra-fast creation of primary SPECT projections. *Iran J Nucl Med* 2011; 19(1):21-29.
21. S. Ahmadi, H. Rajabi, F. Babapoor, **F. Kalantari**. Attenuation correction in SPECT using inverse Monte Carlo method during image reconstruction, a simulation study. *IJ Med Phys*, 2011; 8(3):1-12.
22. **F. Kalantari**, H.Rajabi, N.Yaghoobi, A Bitarafan. Compensation for cross contamination in simultaneous 99mTc/201Tl myocardial perfusion SPECT imaging. *IJ Med Phys* 2010; 6(3):58-71.
23. **F. Kalantari**, H. Rajabi, N. Yaghoobi. Optimized Energy Window Configuration for Tl-201 imaging. *J Nucl Med Technol* 2008 36: 36-43.
24. **F.Kalantari**, H.Rajabi. Estimation of Scatter Function in SPECT Imaging of Torso Phantom, a Simulation Study. *IJ Med. Phys 2007.*

Conference Proceeding Articles:

1. M Tavakoli, M Najib, A Abdollahi, **F Kalantari**. Attenuation Correction in SPECT Images Using Attenuation Map Estimation with Its Emission Data. SPIE Medical Imaging, 2017. http://spie.org/Publications/Proceedings/Paper/10.1117/12.2254828
2. A Sen, **F Kalantari**, H Gifford. Assessment of prostate cancer detection with a visual-search human model observer. SPIE Medical Imaging, 2014. http://spie.org/Publications/Proceedings/Paper/10.1117/12.2043743
3. **F Kalantari**, A Sen, H Gifford. Observer assessment of multi-pinhole SPECT geometries for prostate cancer imaging: a simulation study. SPIE Medical Imaging, 2014. http://spie.org/Publications/Proceedings/Paper/10.1117/12.2044423
4. Hamidreza Babaeifar, Hossein Rajabi, Anando Sen, **Faraz Kalantari**. Quantitative assessment of induced errors in attenuation corrected myocardial SPECT images due to misregistration. IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), 1-6, 2014. https://ieeexplore.ieee.org/document/7430946

5. A Sen, **F Kalantari**, H Gifford. Impact of anatomical noise on model observers for prostate SPECT. IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC), 1-6, 2014. https://ieeexplore.ieee.org/document/7430908
6. **F Kalantari**, H Rajabi, M Saghari, AE Ardekani. Assessment of the effect of 3D resolution recovery during SPECT image reconstruction on quantification of small liver tumors: A simulation study. IEEE Nuclear Science Symposium and Medical Imaging Conference, 2891 – 2894, 2011. https://ieeexplore.ieee.org/document/6152512

PRESENTATIONS & POSTERS

Invited Talks/Awarded Presentations:

1. **F. Kalantari.** Invited lecture on application of routine software in Nuclear Medicine, 10th Asia Oceania Congress of Nuclear Medicine Biology, Tehran, Iran, May 2012. (45 minutes educational)
2. **F. Kalantari**, H. Rajabi, M. Saghari, A.R Emami. The effect of 3D resolution recovery on myocardial perfusion SPECT, *Iranian congress of Nuclear Medicine (ICNM),* Tehran, Iran, 2011.

Other Presentations:

1. G Narayanasamy, S Morrill, M Bimali, E Galhardo, **F Kalantari**, G Lewis. Dosimetric comparison of inverse planning simulated annealing and graphical optimization in Oncentra based MUPIT interstitial plans. AAPM, Vancouver CA, Virtual meeting, 2020.
2. **F Kalantari,** G Narayanasamy, S Morrill, G Deshazer, S Gholami, E Galhardo, Efficient estimation of electron cutout factor using Eclipse electron Monte Carlo model. AAPM, Vancouver CA, Virtual meeting, 2020.
3. G Deshazer, **F Kalantari**, S Morrill, E Galhardo**,** G Narayanasamy. Margin assessment for intracranial SRS localization and Linac-based delivery techniques using brainlab and Eclipse treatment planning systems. AAPM, Vancouver CA, Virtual meeting, 2020.
4. Photoneutron equivalent dose measurement in GRID therapy using TLD types 600/700 and polycarbonate film. S Gholami, S Tajiki, A Hakimi, A Meigooni, **F Kalantari**. AAPM, Vancouver CA, Virtual meeting, 2020.
5. M Fallahpoor, N Vahidfar, **F Kalantari**. SUVmax assessment in 68 Ga-PSMA PET/CT scan. AAPM, San Antonio, TX, 2019.
6. E Malekzadeh, H Rajabi, **F Kalantari**. Evaluation of the septal penetration and scattering effect in the parallel slat collimator Gamma camera on range quantification in proton therapy: A Geant4 Monte Carlo simulation study. AAPM, San Antonio, TX, 2019.
7. T Chiu, D Parsons, **F Kalantari**, S Stojadinovic. Motion tracking quality assurance platform for Leksell Gamma Knife HDMM system. AAPM, San Antonio, TX, 2019.
8. **F Kalantari**, M Yang. Preliminary Analysis of Patient Setup Uncertainty and Intra-Fraction Motion at UT Southwestern Medical Center. Oral ePoster presentation, AAPM, Nashville TN, 2018.
9. M Fallahpoor, M Mokri, N Vahidfar, P Geramifar, G Divband, A Pugachev, **F Kalantari**. The Impact of Chemotherapy, Internal and External Radiotherapy in Ovary FDG Uptake. Oral ePoster presentation, AAPM, Nashville TN, 2018.
10. M Fallahpoor, N Vahidfar, G Divband, **F Kalantari**, M Ay. F-18-PSMA vs. Ga-68-PSMA; S-value Estimation in XCAT BMIs Using GATE Monte Carlo Code. EANM, Dusseldorf, 2018

11. **F Kalantari**, Y Zhong, J Wang. Attenuation and Motion Correction of 4D-PET Images Using Simultaneous Motion Estimation and Image Reconstruction (SMEIR) of 4D-CT Data. Oral presentation, AAPM, Denver Co, 2017.
12. **F Kalantari,** H Rajabi, A Rodriguez, S Gholami, M Tavakoli, J Wang. Analytical Calculation of Scatter Projections in Nuclear Medicine Imaging. Oral presentation, AAPM, Denver Co, 2017.
13. Y Zhong, **F Kalantari**, Y Zhang, J Wang. Quantitative 4D-PET Reconstruction for Small Animal Using 4D-CBCT. Oral presentation, AAPM, Denver Co, 2017.
14. D Shrestha, N Qin, Y Zhang, **F Kalantari**, X Jia, A Pompos, S Jiang, J Wang. Iterative Reconstruction for Carbon Computed Tomography with Accurate Boundary Detection. AAPM, Denver CO, 2017.
15. S Shahzadeh, S Gholami, M Aghamiri, H Mahani, M nabavi, **F Kalantari**. Evaluation of the Gated Radiation Therapy Technique for Lung Cancer: A Simulation Study. AAPM, Denver CO, 2017.
16. M Fallahpoor, P Geramifar , M Ebrahimi**, F Kalantari**. Dose Estimation of 18F-FDG in Breast during PET/CT Scans: A Monte Carlo Study. Oral ePoster presentation, AAPM, Denver CO, 2017.
17. M Tavakoli, **F Kalantari**, A Golestaneh. Comparing Different Preprocessing Methods in Automated Segmentation of Retinal Vasculature. IEEE NSS-MIC, Atlanta, GA 2017
18. M Tavakoli, M Nazar, A Golestaneh, **F Kalantari**. Automated Optic Nerve Head Detection Based on Different Retinal Vasculature Segmentation Methods and Mathematical Morphology. IEEE NSS-MIC, Atlanta, GA 2017
19. M Tavakoli, M Nazar, P Kelley, **F Kalantari**. Automated Fovea Detection Based on Unsupervised Retinal Vessel Segmentation Method. IEEE NSS-MIC, Atlanta, GA 2017
20. M Jin, **F Kalantari**, J Wang, M King. Respiratory Motion Matched Attenuation Correction for Dual Gated Cardiac SPECT. *2017 fully 3D Xi'an, China*
21. **F Kalantari**, J Wang. Attenuation correction in 4D-using a single-phase attenuation map. Oral presentation, AAPM, Washington DC, 2016.
22. M Fallahpoor, M Abbasi, AA Parach, **F Kalantari**. Image-based versus atlas-based internal dosimetry. Oral presentation, AAPM, Washington DC, 2016.
23. M Naseri, H Rajabi, J Wang, **F Kalantari**. Respiratory motion correction in 4D-multi pinhole animal SPECT. Oral presentation, AAPM, Washington DC, 2016.
24. **F Kalantari**, T Li, M Jin, J Wang. Respiratory motion correction in 4D-PET by simultaneous motion estimation and image reconstruction (SMEIR). Oral presentation, AAPM, Anaheim, CA, 2015.
25. M Fallahpoor, M Abbasi, AA Parach, A Sen, **F Kalantari**. Utility of Quantitative 3D SPECT/CT Imaging in Patient Specific Internal Dosimetry of 153-Samarium with GATE Monte Carlo Package. Oral presentation, AAPM Conference, Anaheim, CA, 2015.
26. M Fallahpoor, M Abbaasi, AA Parach, **F Kalantari**. Internal Dosimetry in Nuclear Medicine Using Gate and XCAT Phantom: a Simulation Study. AAPM, Anaheim, CA, 2015.
27. A Sen, **F Kalantari**, H Gifford. Assessment of prostate cancer detection with a visual-search observer in SPECT-CT imaging. Society of Nuclear Medicine Annual Meeting 55, 2074, 2014.
28. A Sen, **F Kalantari**, HC Gifford. Assessment of prostate cancer detection with a visual-search human model observer SPIE Medical Imaging. 90370Q-90370Q-7, San Diego, USA, 2014.
29. **F Kalantari**, A Sen, HC Gifford. Observer assessment of multi-pinhole SPECT geometries for prostate cancer imaging: a simulation study.: SPIE Medical Imaging. 90370L-90370L-7, San Diego, USA, 2014.

30. A Emami-Ardekani, **F Kalantari**, H Rajabi, M Ay, A Fard-Esfahani. The Influence of resolution recovery during image reconstruction on quantitative brain SPECT imaging. European Conference of Nuclear Medicine and Molecular Imaging. Milan, Italy 2012
31. **Faraz Kalantari**, Hossein Rajabi, Seid Kazem Razavi, Mohammadreza Ay, Mohsen Saghari, Alireza Emami-Ardekani Compensation for partial volume effect in brain SPECT images by modeling collimator-detector response during iterative image reconstruction. World Congress on Medical Physics and Biomedical Engineering, Beijing, China, 2012.
32. **Faraz Kalantari**, Hossein Rajabi, Mohsen Saghari, Mohammadreza Ramezani, Alireza Emami-Ardekani. Characterization of low, medium and high energy collimators for common isotopes in nuclear medicine: a Monte Carlo study. *World Congress on Medical Physics and Biomedical Engineering*, Beijing, China, 2012.
33. **Faraz Kalantari**, Hossein Rajabi, Mohsen Saghari, Alireza Emami-Ardekani A fast dedicated software for creation of SPECT projections in non-uniform objects based on Kelin-Nishina equation. *10th Asia Oceania Conference on Nuclear Medicine Biology*, Tehran, Iran, 2012.
34. **F. Kalantari**, H. Rajabi, M. Saghari, A.R Emami Ardekani. The effect of 3D resolution recovery on myocardial perfusion SPECT, *15th Iranian congress of Nuclear Medicine (ICNM),* Tehran, Iran, 2011.
35. **F. Kalantari**, H. Rajabi, M. Saghari. Assessment of the Effect of 3D Resolution Recovery during SPECT Image Reconstruction on Quantification of Small Liver Tumors: a Simulation Study. *IEEE Medical Imaging Conference*, Valencia, Spain, 2011.
36. M.R. Teimoori, S.H. Akhlaghpoor, M.R Ay, **F. Kalantari**, M. Amoui. Quantification of bremsstrahlung images with respect to post radio-embolization liver dosimetry. *Iranian congress of Nuclear Medicine (ICNM)*, Tehran, Iran, 2011.
37. M. Kohanpour, H. Rajabi, M. Beheshti, **F. Kalantari**, M. Pouladian. Dual isotope cardiac imaging Tl-Tc cross contamination correction by subtraction method. *ICNM,* Tehran, Iran, 2011.
38. S. Ahmadi, H. Rajabi, F. Babapoor, **F. Kalantari**. Attenuation correction in SPECT, using inverse Monte Carlo method during image reconstruction, a simulation study. *Iranian congress of Nuclear Medicine (ICNM),* Tehran, Iran, 2011.
39. F. Vedaei, M.R. Ay, A.R Kamali-asl, **F. Kalantari**. Assessment of the impact of applying attenuation correction on the accuracy of activity recovery in Tc99m-ECD brain SPECT of healthy subject using Statistical Parametric Mapping. *Iranian congress of Nuclear Medicine (ICNM),* Tehran, Iran, 2011.
40. **F. Kalantari**, H. Rajabi, M. Saghari. SPECT attenuation related artifacts and their removal by attenuation correction in uniform and non-uniform attenuating objects using iterative reconstruction algorithms. *Iranian congress of Nuclear Medicine (ICNM),* Mashhad, Iran, 2010.
41. **F. Kalantari**, H. Rajabi, M. Saghari; A fast and precise algorithm for simultaneous attenuation correction and resolution recovery in brain SPECT: a simulation study. *Iranian congress of Nuclear Medicine (ICNM),* Mashhad, Iran, 2010.
42. S. Ahmadi, H. Rajabi, **F. Kalantari**, F. Babapoor. SPECT attenuation correction during iterative reconstruction using inverse MC. *The Iranian Machine Vision Image Processing*, Isfahan, 2010.
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SOFTWARE PACKAGES

- 4D-PET image reconstruction. Developed in C++.
- Resolution recovery and CT-based attenuation correction in SPECT, developed in MATLAB.
- Analytical and iterative reconstruction software, developed in MATLAB.
- Fast creation of Scatter projections in SPECT using Klein-Nishina formula, in MATLAB.

PROFESSIONAL ACTIVITIES

Membership

American Association of Physicists in Medicine (AAPM)	2014- present
American Brachytherapy Society (ABS)	2018- present
American College of Radiology (ACR)	2016- present

Manuscript Reviewer

Physics in Medicine and Biology, Medical Physics, IEEE Transaction on Medical Imaging, Molecular Imaging and Biology