Ali Ketabi, PhD

BRIEF RESUME

Assistant Professor of Medical Physics
Department of Radio-Oncology, Namazi Hospital, Shiraz University of Medical Sciences,
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EDUCATION

Ph.D. in Medical Physics 2013 – 2018
Tehran University of Medical Sciences, Tehran, Iran

M.Sc. in Medical Physics 2009 – 2012
Shiraz University of Medical Sciences, Shiraz, Iran

B.Sc. In Atomic and Molecular Physics 2005 – 2009
Bu-Ali Sina University, Hamedan, Iran

TRAINING & EMPLOYMENT

Assistant Professor of Medical Physics 01/2021 – now
Shiraz University of Medical Sciences (SUMS) – Department of Radio-Oncology

Medical Physicist and Instructor 05/2015 – 05/2019
Hamedan University of Medical Sciences – Department of Medical Physics

CLINICAL EXPERIENCE

Acceptance and Commissioning

- Participated in commissioning of Elekta Compact LINAC
- Accuray TOMO (Radixact) physicist
- Acceptance and commissioning of Accuray Radixact® System
- Performed commissioning of MIM software
- Performed commissioning of Prowess treatment planning system

Machine and Patient-specific Quality Assurance (QA)

- Performed weekly, monthly and annual QA for Siemens ONCOR LINAC

- Performed weekly, monthly and annual QA for Elekta Compact LINACs
- Performed monthly QA for Siemens Big-Bore CT simulator
- Performed patient-specific IMRT/SBRT QA using film & ion chamber measurement
- Performed patient-specific IMRT/SBRT QA using other dedicated methods
- Supervised patient-specific IMRT/SBRT QA practices and solved QA issues as on-call Physicst
- Performed in-vivo patient-specific dosimetry with TLD & Diodes measurement
- Prepared and performed IMRT QA plans for Radixact® System treatments

Treatment planning

- 3D and IMRT planning with Prowess treatment planning system
- 3D and IMRT planning with TiGRT treatment planning system
- GYN brachytherapy treatment planning for Tandem and Ovoid, Cylinder, Syed with SagiPlan - HDR Treatment Planning system
- Tomotherapy Treatment planning with Accuray Precision TPS

HDR Brachytherapy

- Performed daily and patient-specific HDR brachytherapy QA for HDR Brachytherapy - SagiNova
- Performed HDR treatment planning and treatment with Cylinders, Tandem and Ovoid, Syed, superficial applicators

Routine Physicist of the Day (POD) Duty

- Routinely performed initial, weekly and final physics chart checks using record and verification system

Other Procedures

- Routinely performed ion chamber/electrometer cross-calibration
- Routinely performed film calibration for patient specific QA
- Developed patient specific TOMO IMRT QA instruction document for Namazi Hospital QA team

TEACHING EXPERIENCE

Tehran University of Medical Sciences, Department of Medical Physics, Tehran, Iran

- Lecturer on the theoretical and practical course on Monte Carlo simulation and the MCNP package, Tehran University of Medical Sciences (For Medical Physics PhD students,2016, 2017)

Hamedan University of Medical Sciences, Department of Medical Physics, Hamedan, Iran

- Lecturer on a course on radiation protection (Graduate level, 2019)
- Lecturer on courses on Basic physics (Graduate level, 2019)
- Lecturer on a course on Health Physics Laboratory (Graduate level, 2019)

Shiraz University of Medical Sciences, Radio-Oncology Department, Shiraz, Iran

- Lecturer and physics mentor in Radiotherapy Physics on the Radio-Oncology Resident Training

program (2021-present)

- Lecturer on various topics on the theoretical and practical course in radiotherapy, Shiraz University of Medical Sciences, Iran (2021-present)
- Lecturer on various radiotherapy topics on the Namazi Hospital Medical Physicists and Radiotherapy Technologists Continuing Medical Education program (2021-present)
- Radiotherapy Instrumentation (For Radio-Oncology Residents, 2021-present)
- Lecturer on *Tomotherapy Physics Essentials* on *the Workshop on IMRT*, Shiraz University of Medical Sciences, Iran (2022)
- Lecturer on *Precision™ Treatment Planning* on the Namazi Hospital, Shiraz University of Medical Sciences, Iran (For Medical Physicists and Radio-Oncology Residents 2022)
- Lecturer on the Workshop on *the theoretical and practical course in Simulation and dosimetric calculations with MCNP*, Shiraz University of Medical Sciences, Iran (2011)
- Lecturer on a Workshop on *radiation protection* in radiology and Nuclear Medicine, Shiraz University of Medical Sciences, Iran (2011)

Training junior residents and Medical Physicists**:** 2021-present

- Treatment Planning, Radiation Measurement Instruments, IMRT patient-specific QA, annually and monthly QA, Quality Control of radiotherapy Systems, ion chamber/electrometer cross calibration, in-vivo dosimetry, film dosimetry and etc.
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MENTORING AND LEADERSHIP EXPERIENCE

- **MSc Advisor**: Shiraz University of Medical Sciences **2016-2018**

  Project title: Evaluation of the Impact of Image Segmentation and Reconstruction Techniques on 18F-FDG PET/CT Quantification in Tumor Imaging Using Clinical and Phantom Images
- **Joint MD research project Advisor**: Kurdistan University of Medical Sciences **2016-2018**

  Project title: Investigation of CT scan findings among head trauma patients admitted to the Emergency Department of Besat Hospital
- **MSc Advisor**: Shiraz University of Medical Sciences **2021-present**

  Project title: Dosimetric and radiobiological assessment of cardiac and target volume doses in left-sided breast cancer radiotherapy using a novel uninterrupted irradiation voluntary breath hold (uiVBH) technique

RESEARCH PROJECTS

Medical Physics 11/2021-present

Shiraz University of Medical Sciences – Department of Radio-Oncology

- Quantification of the impact of intra-tumoral heterogeneity on local tumor control probability based on PET/CT imaging-based dose painting with intensity-modulated radiotherapy.

Ph.D. Student 09/2015-09/2018

Tehran University of Medical Sciences, Department of Medical Physics

- Quantification of the impact of image reconstruction techniques on the accuracy of molecular PET/CT-based treatment planning using radiobiological modeling. *The results*

of this project were published in three peer- reviewed journals and were presented at Annual Congress of the European Association of Nuclear Medicine (2016 & 2017) and 12th World Congress of the World Federation of Nuclear Medicine and Biology

M.Sc. Student 09/2010-07/2012

Shiraz University of Medical Sciences, Shiraz, Iran – Department of Medical Physics

- A study of in-vivo dosimetry in small radiotherapy fields using measurements and Monte Carlo simulations. *The results of this project were published in two peer-reviewed journal papers and presented as three oral presentations at 20th International Conference on Medical Physics and Biomedical engineering (ICMP), World Congress on Medical Physics and Biomedical Engineering, and International Conference of Medical Physics (MEFOMP).*

SELECTED CLINICAL PROJECTS & TASKS

Certificate Medical Physicist for:

- Accuray Tomotherapy (Radixact) System
- Accuray Precision Treatment Planning for the Radixact System

PUBLICATIONS

Peer-reviewed Journal Papers & Conference Proceeding Articles:

1. **Ketabi A**, Karbasi S, Faghihi R, Mosleh-Shirazi MA. A phantom-based experimental and Monte Carlo study of the suitability of in-vivo diodes and TLD for entrance in-vivo dosimetry in small-to-medium sized 6 MV photon fields. Radiation Physics and Chemistry. 2022:110411.
2. Mosleh-Shirazi MA, Nasiri-Feshani Z, Ghafarian P, Alavi M, Haddadi G, **Ketabi A**. Tumor volume-adapted SUVN as an alternative to SUVpeak for quantification of small lesions in PET/CT imaging: a proof-of-concept study. Japanese Journal of Radiology. 2021;39(8):811-23.
3. **Ketabi A**, Ghafarian P, Mosleh-Shirazi MA, Mahdavi SR, Rahmim A, Ay MR. Impact of image reconstruction methods on quantitative accuracy and variability of FDG-PET volumetric and textural measures in solid tumors. European radiology. 2019;29(4):2146-56.
4. **Ketabi A**, Ghafarian P, Mosleh-Shirazi MA, Mahdavi SR, Ay MR. The influence of using different reconstruction algorithms on sensitivity of quantitative 18F-FDG-PET volumetric measures to background activity variation. Iranian Journal of Nuclear Medicine. 2018;26(2):87-97.
5. Ghafarian P, **Ketabi A**, Mosleh-Shirazi M, Ay M, editors. Volume-based assessment of different image reconstruction algorithms and thresholds for FDG-PET/CT based on dose-painting concept. EUROPEAN JOURNAL OF NUCLEAR MEDICINE AND MOLECULAR IMAGING; 2017: SPRINGER 233 SPRING ST, NEW YORK, NY 10013 USA.
6. **Ketabi A**, Masjoodi S, Mosleh-Shirazi M, Ay M. Is the averaged SUV from several hottest voxels an alternative to SUV peak for quantification of large heterogeneous or small lesions in oncological PET imaging? 2017.
7. **Ketabi A**, Mosleh-Shirazi M, Ay M. Volume-based assessment of different image

reconstruction algorithms and thresholds for FDG-PET/CT based on dose-painting concept. 2017.

8. Ghafarian P, **Ketabi A**, Doroudinia A, Karam MB, Ay M, editors. Effect of TOF and PSF in detection of lymph node metastases in head and neck of PET/CT images. European Journal of Nuclear Medicine and Molecular Imaging; 2016: SPRINGER 233 SPRING ST, NEW YORK, NY 10013 USA.

9. Mosleh-Shirazi MA, **Ketabi A**, Karbasi S, Faghihi R. Assessment of an Unshielded Electron Field Diode Dosimeter for Beam Scanning in Small-to Medium-Sized 6 MV Photon Fields. Iranian Journal of Medical Physics. 2013;10(1):51-7.
10. Mosleh-Shirazi MA, **Ketabi A**, Karbasi S, Faghihi R. An experimental and Monte-Carlo study of in-vivo dosimetry in small radiotherapy fields using in-vivo diodes and TLD. Medical Physics. 2013;1(2).
11. Mosleh-Shirazi MA, Karbasi S, **Ketabi A**, Mohammadianpanah M, Mosalaei A. Investigation of the dosimetric stability of a new linear accelerator and development of its Monte Carlo model. Proceedings of the IPEM Medical Physics and Engineering. 2012:p. 121-2.

PRESENTATIONS & POSTERS (International only**)**

12. **Ali Ketabi**, Pardis Ghafarian, Mohammad Amin Mosleh-Shirazi, Mohammad Reza Ay, Variation in background activity affects SUV-based volumetric measures in differently reconstructed FDG-PET images: a phantom study, 12th World Congress of the World Federation of Nuclear Medicine and Biology. 2017, Melbourne, Australia
13. **Ali Ketabi**, Pardis Ghafarian, Mohammad Amin Mosleh-Shirazi, Mohammad Reza Ay, Volume-based assessment of different image reconstruction algorithms and thresholds for FDG-PET/CT image-guided dose painting, Annual Congress of the European Association of Nuclear Medicine. 2017, Vienna, Austria.
14. **Ali Ketabi**, Pardis Ghafarian, Sadegh Masjoodi, Mohammad Amin Mosleh-Shirazi, Mohammad Reza Ay, Is the averaged SUV from several hottest voxels an alternative to SUVpeak for quantification of large heterogeneous or small lesions in oncological PET imaging?, Annual Congress of the European Association of Nuclear Medicine. 2017, Vienna, Austria.
15. Pardis Ghafarian, **Ali Ketabi**, Abtin Doroudinia, Mehrdad Bakhshayesh Karam, Mohammad Reza Ay, Effect of TOF and PSF in detection of lymph node metastases in head and neck of PET/CT images, Annual Congress of the European Association of Nuclear Medicine. 2016, Barcelona, Spain.
16. Mohammad Amin Mosleh-Shirazi1, **Ali Ketabi**, Sareh Karbasi, Reza Faghihi, An experimental and monte-carlo study of in-vivo dosimetry in small radiotherapy fields using invivo diodes and TLD, 20th International Conference on Medical Physics and Biomedical engineering (ICMP). 2013, Brighton, England.
17. **Ketabi A**, Rahimian M, Abdollahi H, Zarrini Z, Mosleh-Shirazi MA, Risk Perception and Communication in Nuclear Medicine Centers: A Survey, 5th International and 17th National Iranian Congress of Nuclear Medicine. 2013, Shiraz, Iran.
18. Mosleh-Shirazi MA, **Ketabi A**, Karbasi S, Faghihi R, An MCNP model of the Elekta Compact linear accelerator and sensitivity of its calculated percentage depth dose to beam energy, World Congress on Medical Physics and Biomedical Engineering. 2012, Beijing, China.

19. Mosleh-Shirazi MA, **Ketabi A**, Karbasi S, Faghihi R, Monte carlo modeling of a 6 mv Elekta campacttm linac photon beam for radiotherapy use: Tuning and Validation, International Conference of Medical Physics (MEFOMP). 2011, Shiraz, Iran.