Curriculum Vitae

Name: *Nahideh*

Surname: *Gharehaghaji*

Field of study: *Medical Physics*

Academic degree: *Professor*

Address: *Department of Radiology, Faculty of Allied Medical Sciences, Tabriz University of Medical Sciences, Tabriz, Iran*

Email: *gharehaghajin@tbzmed.ac.ir*

Educations:

Ph.D: *Medical Physics - Tehran University of Medical Sciences*

MSc: *Medical Physics - Mashhad University of Medical Sciences*

BSc*: Technology of Radiology - Tabriz University of Medical Sciences*

Theses:

MSc thesis: *Calculation of organ and effective doses in conventional radiographies*

PhD thesis: *Evaluation of effective parameters on optimum contrast of MR imaging using superparamagnetic iron oxide nanoparticles*

Research interests:

1. *Application of nanostructures in different imaging modalities (MRI, CT and fluorescent imaging)*

2. *Bimodal imaging*
3. *Multifunctional nanoprobes*
4. *Nanoshields*
5. *Gel dosimetry*
6. *Radiation dosimetry and protection in radiology*

Publications:

1. *Divband B,* ***Gharehaghaji N****, Atashi Z. High Transverse Relaxivity and Anticancer Agent Loading/Release Characteristics of Porous Calcium Phosphate Coated Iron Oxide Nanoparticles. Biointerface Research in Applied Chemistry. 2021; 11(3): 10402-11.*

2. ***Gharehaghaji N****, Divband B, Bakhtiari-Asl F. Utilization of Innovative Hydroxyapatite-Coated Gd2O3@Bi2O3 Nanocomposite as a Bifunctional Material for Magnetic Resonance Imaging and Computed Tomography. BioNanoScience. 2020; 10(4):909-16.*

3. *Estak K, Mohammadzadeh M,* ***Gharehaghaji N****, Mortezazadeh T, Khatyal R, Khezerloo D. Optimisation of CT scan parameters to increase the accuracy of gross tumour volume identification in brain radiotherapy. Journal of Radiotherapy in Practice. 2020; 1-5.*

4. *Divband B,* ***Gharehaghaji N****, Takhiri M. Effect of Neodymium Doping on MRI Relaxivity of Gadolinium Oxide Nanoparticles. Journal of Biomedical Physics & Engineering. 2020; 10(5):589.*

5. *Ghaderi S, Divband B,* ***Gharehaghaji N****. Magnetic resonance imaging property of doxorubicin-loaded gadolinium/13X zeolite/folic acid nanocomposite. Journal of Biomedical Physics & Engineering. 2020; 10(1):103-10.*

6. *Bakhtiari-Asl F, Divband B, Mesbahi A,* ***Gharehaghaji N****. Bimodal magnetic resonance imaging-computed tomography nanoprobes: A Review. Nanomedicine Journal. 2020; 7(1):1-12.*

7. *Badrigilan S, Shaabani B, **Gharehaghaji N**, Mesbahi A. Graphene quantum dots-coated bismuth nanoparticles for improved CT imaging and photothermal performance. International Journal of Nanoscience. 2020; 19(01):1850043.*

8. *Badrigilan S, Shaabani B, **Gharehaghaji N**, Mesbahi A. Iron oxide/bismuth oxide nanocomposites coated by graphene quantum dots:"Three-in-one" theranostic agents for simultaneous CT/MR imaging-guided in vitro photothermal therapy. Photodiagnosis and photodynamic therapy. 2019; 25:504-14.*

9. ***Gharehaghaji N**, Divband B, Atashi Z. Analytical study of effect of bilayer inorganic and organic coatings around the iron oxide nanoparticles on magnetic resonance imaging contrast. Urmia Medical Journal. 2019; 30(8):597-608 (Persian).*

10. *Shafaei E, Divband B, **Gharehaghaji N***. Relevance between MRI longitudinal relaxation rate and gadolinium concentration in Gd^{3+}/GO/alginate nanocomposite. Nanomedicine Journal. 2019; 6(4):263-8.*

11. *Asgari M, Divband B, **Gharehaghaji N***. Signal suppressions of grape syrup and grape syrup/lemon aqueous solutions in magnetic resonance cholangiopancreatography using heavily T2-weighted pulse sequence. Polish Journal of Medical Physics and Engineering. 2019; 25(3):149-54.*

12. *Zeini M, Divband B, Khezerloo D, **Gharehaghaji N***. Biomedical applications of bismuth oxide based nanocomposite: computed tomography and anticancer drug loading. Biointerface Research in Applied Chemistry, 2019; 9(4):4101-6.*

13. ***Gharehaghaji N**, Khezerloo D, Abbasiazar T. Image quality assessment of the digital radiography units in Tabriz, Iran: a phantom study. Journal of medical signals and sensors. 2019; 9(2):137-42.*

14. *Zareei L, Divband B, Mesbahi A, Khatamian M, Kiani A, **Gharehaghaji N***. A new potential contrast agent for magnetic resonance imaging: iron oxide-4A nanocomposite. Journal of biomedical physics & engineering. 2019; 9(2):211-16.*

15. *Farshi RG, Mesbahi A, Johari M, Kara Ü, **Gharehaghaji N***. *Dosimetry of Critical Organs in Maxillofacial Imaging with Cone-beam Computed Tomography. Journal of biomedical physics & engineering. 2019; 9(1):51-60.*

16. ***Gharehaghaji N**, Divband B, Zareei L. Nanoparticulate NaA zeolite composites for MRI: Effect of iron oxide content on image contrast. Journal of Magnetism and Magnetic Materials. 2018; 456:136-41.*

17. ***Gharehaghaji N**, Divband B. A novel MRI contrast agent synthesized by ion exchange method. Nanomedicine Journal. 2018; 5(1):15-8.*

18. *Divband B, Rashidi MR, Khatamian M, Eslamian GK, **Gharehaghaji N**, Tabriz FD. Linde type A and nano magnetite/NaA zeolites: cytotoxicity and doxorubicin loading efficiency. Open Chemistry. 2018; 16(1):21-8.*

19. *Ghavami SM, **Gharehaghaji N***, Azabdaftari F. A Case Report of Secondary Infertility Due to Retained Surgical Gauze. Qom University of Medical Sciences Journal. 2018; 12(1):99-103 (Persian).*

20. *Zeinali R, Keshtkar A, Zamani A, **Gharehaghaji N**. Brain volume estimation enhancement by morphological image processing tools. Journal of biomedical physics & engineering. 2017; 7(4):379-88.*

21. *Atashi Z, Divband B, Keshtkar A, Khatamian M, Farahmand-Zahed F, Nazarlo AK, **Gharehaghaji N***. Synthesis of cytocompatible Fe3O4@ ZSM-5 nanocomposite as magnetic resonance imaging contrast agent. Journal of Magnetism and Magnetic Materials. 2017; 438:46-51.*

22. *Hossein Pourfeizi H, Ghavami SM, **Gharehaghaji N**. Osteoid Osteoma in the Coccyx: A Case Report. Journal of Mazandaran University of Medical Sciences. 2017; 26(145):403-7 (Persian).*

23. *Ghavami SM, **Gharehaghaji N***. *An analysis of the findings of hysterosalpingography on 1260 cases in Tabriz. 2016; 4(5):1-6 (Persian).*

24. *Ghavami SM, Abedinzadeh R, **Gharehaghaji N**. Huge Fetal Cervical Teratoma: A Case Report. Journal of Mazandaran University of Medical Sciences. 2016; 26(137): 211-6 (Persian).*

25. *Ghavami SM, Abedinzadeh R, **Gharehaghaji N**. Fetal Gallstones: A Case Report. Journal of Mazandaran University of Medical Sciences. 2015; 25(129): 153-7 (Persian).*

26. ***Gharehaghaji N**, Nazarpoor M, Saharkhiz H. Effect of Flip Angle on the Correlation between Signal Intensity and Different Concentrations of Iron Oxide Nanoparticles Using T1-Weighted Turbo-FLASH Inversion Recovery Sequence. Iranian Journal of Radiology. 2015; 12(2): e22887.*

27. ***Gharehaghaji N**, Nazarpoor M, Saharkhiz H. Effect of iron oxide nanoparticles coating type on the relationship between nanoparticles concentration and signal intensity in inversion recovery T1-weighted MRI. Medical Journal of the Islamic Republic of Iran. 2015; 29:211.*

28. *Mesbahi A, Dadgar H, **Gharehaghaji N**, Mohammadzadeh M. A Monte Carlo approach to lung dose calculation in small fields used in intensity modulated radiation therapy and stereotactic body radiation therapy. Journal of cancer research and therapeutics. 2014; 10(4):896-902.*

29. ***Gharehaghaji N**. Mirahadi M. Evaluating Motivation and Interest in Choosing Career or Higher Education Study among Radiology Students in Tabriz University of Medical Sciences. Jundishapur Education Development Journal. 2014; 5(2):148-55 (Persian).*

30. *Saharkhiz H, **Gharehaghaji N***, Nazarpoor M, Mesbahi A, Pourissa M. The effect of inversion time on the relationship between iron oxide nanoparticles concentration and signal intensity in T1-weighted MR images. Iranian Journal of Radiology. 2014; 11(2): e12667.*

31. *Azabdaftari F, **Gharehaghaji N**, Hariri Akbari M. Motivation in learning English among the paramedical sciences students in Iran: finding a job or grabbing a culture? Research and Development in Medical Education, 2014; 3(1):9-13.*

32. *Mesbahi A, Jamali F, **Gharehaghaji N**. Effect of photon beam energy, gold nanoparticle size and concentration on the dose enhancement in radiation therapy. BioImpacts. 2013; 3(1): 29-35.*

33. *Oghabian MA, **Gharehaghaji N**, Masoudi A, Shanehsazzadeh S, Ahmadi R, Majidi RF, Hosseini HR. Effect of coating materials on lymph nodes detection*

using magnetite nanoparticles. Advanced Science, Engineering and Medicine. 2013; 5(1):37-45.

34. *Mesbahi A, Jafarzadeh V, **Gharehaghaji N**. Optical and NMR dose response of N-isopropylacrylamide normoxic polymer gel for radiation therapy dosimetry. Reports of Practical Oncology & Radiotherapy. 2012; 17(3):146-50.*

35. *Oghabian MA, **Gharehaghaji N**, Amirmohseni S, Khoei S, Guiti M. Detection sensitivity of lymph nodes of various sizes using USPIO nanoparticles in magnetic resonance imaging. Nanomedicine: Nanotechnology, Biology and Medicine. 2010; 6(3):496-9.*

36. ***Gharehaghaji N**, Oghabian MA, Sarkar S, Amirmohseni S, Ghanaati H. Optimization of pulse sequences in magnetic resonance lymphography of axillary lymph nodes using magnetic nanoparticles. Journal of nanoscience and nanotechnology. 2009; 9(7):4448-52.*

37. ***Gharehaghaji N**, Oghabian MA, Sarkar S, Darki F, Beitollahi A. How size evaluation of lymph node is protocol dependent in MRI when using ultrasmall superparamagnetic iron oxide nanoparticles. Journal of magnetism and magnetic materials. 2009; 321(10):1563-5.*

38. *Pourissa M, Refahi S, **Gharehaghaji N.** Prenatal diagnosis of Robert/Sc syndrome in a diabetic mother with a history of Mebendazole and Glibenclamide intake. Journal of Acta Medica Iranica. 2003; 41:148-149.*

39. *Hajizadeh Saffar M, Bahreyni Toossi MT, **Gharehaghaji N**. An evaluation of organ and effective doses arising from diagnostic chest X-ray procedure in Ghaem hospital Mashhad. Medical Journal of Mashhad University of Medical Sciences. 1999;43:9-13 (Persian).*

40. *Bahreyni Toossi MT, Hajizadeh Saffar M, **Gharehaghaji N.** An assessment of effective dose arising from conventional radiographies in Mashhad Ghaem hospital. Medical Journal of Mashhad University of Medical Sciences. 1998; 43:41-47 (Persian).*

41. *Hajizadeh Saffar M, Bahreyni Toossi MT, **Gharehaghaji N.** An assessment of gonads, bone marrow and thyroid doses from common medical X-ray*

procedures in Mashhad Ghaem hospital. Medical Journal of Mashhad University of Medical Sciences.1998; 43:3-7 (Persian).

Presentations:

1. ***Gharehaghaji N**, Hasani S. Abdominal imaging findings in Covid-19. 36th Iranian congress of Radiology. 3-6 November 2020 (Virtually).*
2. ***Gharehaghaji N**, Khalilneghad M, Ghasemi shayan R. Utilization of manganese oxide nanoparticles in MRI. 18th Iranian Congress of Radiographic Sciences Association. 18 November 2020 (Virtually).*
3. *Vafadar A, **Gharehaghaji N**, Goli M. Diffuse optical imaging for differentiating malignant and benign tumors of breast. 36th Iranian congress of Radiology. 3-6 November 2020 (Virtually).*
4. ***Gharehaghaji N***, Bakhtiari-Asl F. Nano shields in radiotherapy. 18th Iranian Congress of Radiographic Sciences Association. 18 November 2020 (Virtually).*
5. ***Gharehaghaji N**, Hosseinpour-Jahani B Ahmadzadeh F, Zarean F, Bakhtiari-Asl F. Nanotheranostics in brain cancer. 18th Iranian Congress of Radiographic Sciences Association. 18 November 2020 (Virtually).*
6. *Naghipoor Alamdari M, **Gharehaghaji N**. Comparing accuracy of semantic and radiomics features in prognosis of epidermal growth factor receptor mutation in non-small cell lung cancer. 18th Iranian Congress of Radiographic Sciences Association. 18 November 2020 (Virtually).*
7. ***Gharehaghaji N***, Khezerloo D, Ghiyabi M. Role of electromagnetic radio frequency waves in novel drug delivery devices and localized tumor therapy. The second National Congress of Bioelectromagnetic: Opportunities and Challenges. Tehran, Iran, 18-20 February 2020.*
8. ***Gharehaghaji N**, Hasani S. Graphene based nanotheranostics for MRI/optical imaging and cancer therapy. 3th Nanomedicine & Nanosafety Conference (NMNS), Tehran, Iran, 25-26 January 2020.*

9. *Zendeh Ghaem A, Hoseinpour Jahani B, Hasanpoor S,* ***Gharehaghaji N****. *PET/MRI as a new method for detection and differentiation of breast cancer lesions. 10th International Tehran Breast Cancer Congress, Tehran, Iran, 23-25 October 2019.*

10. ***Gharehaghaji N****, Divband B. Potential of pegylated magnetite nano zeolite for magentic resonance imaging and drug delivery. 19th International Zeolite Conference. Crown Perth, Australia 7-12 July, 2019.*

11. ***Gharehaghaji N****, Divband B. Ethylene glycol coated magnetic graphene oxide nanocomposite for MRI. 21th Iranian Inorganic Chemistry Seminar, Arak. Iran, 27-28 August, 2019.*

12. *Khezerloo D,* ***Gharehaghaji N****, Hasanpoor S. The role of optical imaging methods in diagnosis of breast diseases. 6th RIAPA Annual International Meeting of Research Institute for Applied Physics & Astronomy: Biophotonics, Tabriz, Iran, 11-12 July, 2018.*

13. ***Gharehaghaji N****, Divband B. Zeolites as supporting materials for gadolinium and iron oxide nanoparticles based MRI contrast agents. 5th Iran International Zeolite Conference, Tabriz, Iran, 26-27 August, 2018.*

14. ***Gharehaghaji N****, Bakhtiari Asl F, Divband B. Application of Porous Gd_2O_3 Nanoparticles as MRI Contrast Agent. 5th Iran International Zeolite Conference, Tabriz, Iran, 26-27 August, 2018.*

15. ***Gharehaghaji N****, Khezerloo D. Microdosimetry: experimental methods and medical applications. 12th Iranian Congress of Medical Physics, Tehran, Iran, July 19-20, 2018.*

16. *Khezerloo D,* ***Gharehaghaji N.*** *Diagnostic applications of superparamagnetic iron oxide nanoparticles as MRI contrast agents.16th Iranian Congress of Radiographic Sciences Association, Tehran, Iran, May 1-4, 2018.*

17. *Divband B, Dabaghi F,* ***Gharehaghaji N****, Asadloo A. A Novel Drug Carrier System for Encapsulation of Curcumin. 8th International Conference on Nanotechnology (ICN2018), Istanbul, Turkey, February 8-9, 2018.*

18. ***Gharehaghaji N**, Dabaghi F, Divband B. Cytotoxicity and MRI study of nano magnetite carrier. 8th International Conference on Nanotechnology (ICN2018), Istanbul, Turkey, 8-9 February, 2018.*

19. ***Gharehaghaji N**, Divband B, Atashi Z, Zareei L. Fe_3O_4/zeolite nanocomposites: effect of zeolite support type on MRI Longitudinal relaxivity. The Second Nanomedicine & Nanosafety Conference, Tehran, Iran, November 29-30, 2017.*

20. ***Gharehaghaji N**, Nazarpoor M, Saharkhiz H. Investigation of the T2 effect of carboxydextran coated iron oxide nanoparticles at different inversion times of MRI. 11th Iranian Congress of Medical Physics. Tehran, Iran, 6-7 October 2014 (Persian).*

21. *Saharkhiz H,**Gharehaghaji N***, Nazarpoor M. Effect of coil non-uniformity on MR angiography images provided using iron oxide nanoparticles. 11th Iranian Congress of Radiographic Sciences Association, Tehran, Iran, May 4-5, 2013(Persian).*

22. ***Gharehaghaji N**, Mirahadi M. Use background equivalent radiation time (BERT) for patients' perception of the received radiation in routine CT scans. National Conference on Paramedicine and Health, Yasouj, Iran, May 8-11, 2012(Persian).*

23. ***Gharehaghaji N**, Oghabian MA, Sarkar S, Rafiei B. Optimization of imaging parameters in MR lymphography using iron oxide nanoparticles.9th Iranian Congress of Medical Physics, Tehran, Iran, May 19-20, 2010.*

24. ***Gharehaghaji N**, Oghabian MA, Sarkar S, Beitollahi A. Effect of MRI on detection of lymph node size using USPIO nanoparticles. NanoSmat 2008 conference. Barcelona, Spain, October 21-24, 2008.*

25. *Oghabian MA. **Gharehaghaji N**, Sarbolouki MN, et al. Study of effective parameters on image quality using USPIO nanoparticles in MR lymphography. Iran's 1st International Conference on Biomaterials. Tehran, Iran, November 12-15, 2007.*

26. *Oghabian MA. Giti M, **Gharehaghaji N**, et al. Investigation of the current status of MR contrast agents containing iron oxide nanoparticles (USPIO)*

and their detection sensitivity. 7th Iranian Congress of Medical Physics. Ahvaz, Iran, 13-15 February 2006 (Persian).

27. *Oghabian MA. Giti M, Haddad P, **Gharehaghaji N**, et al. Detection sensitivity of MRI using ultrasmall superparamagnetic iron oxide nanoparticles (USPIO) in biological tissues. EMBS Annual International Conference. New York City, USA, August 30- September 3, 2006.*

28. *Oghabian MA. Giti M, **Gharehaghaji N**, et al. Effect of MR protocols on detectability of ultrasmall superparamagnetic iron oxide nanoparticles (USPIO). 6th International Conference on the Scientific and Clinical Applications of Magnetic Carriers. Krems, Austria, May 17-20, 2006.*

Teaching experiences:

MSC students:

1. *Physics of magnetic resonance imaging*
2. *Magnetic resonance imaging techniques and protocols*
3. *Seminar*
4. *Research method*
5. *Principles of writing articles in English*
6. *Medical imaging systems and methods*
7. *MR imaging methods*

BSC students:

1. *Physical principles of MRI*
2. *Techniques and clinical aspects of computed tomography*
3. *Application of computers in medical imaging*
4. *Structure and properties of contrast media in medical imaging*
5. *Medical terms in radiology*
6. *Physical principles of computed tomography systems*
7. *Radiographic procedures 1, 2, 3*
8. *Dosimetry of ionizing radiation*
9. *Seminar*
10. *Specific radiographic procedures*

11. *Radiobiology*
12. *Medical physics*
13. *Basics of acoustic*
14. *General physics*