

## **Personal Information:**

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Department of Medical physics, Shahid Beheshti University of Medical Sciences, Tehran, Iran

## **Educational Background:**

**Ph.D.** Medical Physics, Mashhad University of Medical Sciences, Mashhad, Iran, 2018- 2023.

**M.Sc.** Medical Physics, Iran University of Medical Sciences, Tehran, Iran, 2015-2018

**B.Sc.** Radiology, Urmia University of Medical Science, Urmia, Iran, 2011-2015

## **Work experience:**

1- Work as medical physicist at Omid Cancer Hospital in Mashhad, Iran

- Treatment planning, Patient positioning, CT simulator, daily and weekly QC

2- work as radiology technician at radiology department of Imam Khomeini Hospital, Urmia, Iran

- Working with conventional radiology, digital radiology, CT scan and MRI

3- Teaching at medical physics department in Mashhad University of Medical Science, Mashhad, Iran

- Teaching some courses related to high tech microscopes for master students of medical physics

4- Teaching at medical physics department in Iran University of Medical Science, Tehran, Iran

- Teaching some laboratory courses related to ultrasound and probe calibration for master students of medical physics

5- Teaching at medical physics department in Shahid Beheshti University of Medical Science, Tehran, Iran

- Teaching atomic and nuclear physics and physics of diagnostic radiology for master students of medical physics

6- Working at Bu Ali research institute of Mashhad

- Working on different treatment like Photodynamic therapy, Photothermal therapy, Magnetic hyperthermia, Sonodynamic therapy

## Publications:

1- **Bahareh Khalili Najafabad**, Neda Attaran, Mehdi Barati, Zahra Mohammadi, Mahmoud Mahmoudi\*, Ameneh Sazgarnia\*

Cobalt ferrite nanoparticle for the elimination of CD133+ CD44+ and CD44+ CD24-, in breast and skin cancer stem cells, using non-ionizing treatments

Heliyon, October 2023, Volume 9, Issue 10, (<https://doi.org/10.1016/j.heliyon.2023.e19893>)

2- **Bahareh Khalili Najafabad**, Neda Attaran, Mahmoud Mahmoudi\*, Ameneh Sazgarnia\*

“Effect of photothermal and photodynamic therapy with cobalt ferrite superparamagnetic nanoparticles loaded with ICG and PpIX on cancer stem cells in MDA-MB-231 and A375 cell lines”

Photodiagnosis and Photodynamic Therapy, June 2023, page 103648, (<https://doi.org/10.1016/j.pdpdt.2023.103648>)

3- Zahra Rezaeivala, Armin Imanparast, Zahra Mohammadi, **Bahareh Khalili Najafabad\***, Ameneh Sazgarnia\*

“The multimodal effect of Photothermal/Photodynamic/Chemo therapies mediated by Au-CoFe<sub>2</sub>O<sub>4</sub>@Spiky nanostructure adjacent to mitoxantrone on breast cancer cells”

Photodiagnosis and Photodynamic Therapy, Volume 41, March 2023, page 103269, (<https://doi.org/10.1016/j.pdpdt.2022.103269>)

4- Vahid Abolzadeh, Armin Imanparast, Hooriyeh Nassirli, Naser Tayebi Meybodi, **Bahareh Khalili Najafabad\***, Ameneh Sazgarnia\*

“In vivo evaluation of Sono-chemo therapy via hollow gold nanoshells conjugated to mitoxantrone on breast cancer”

Iranian Journal of Basic Medical Sciences , Volume 26, December 2022, page 285, (<https://dx.doi.org/10.22038/IJBMS.2023.67602.14811>)

5- Rasoul Irajirad, Amirhossein Ahmadi, **Bahareh Khalili Najafabad**, Ziaeddin Abed, Roghayeh Sheervalilou, Samideh Khoei, M Bagher Shiran, Habib Ghaznavi, Ali Shakeri-Zadeh

“Combined thermo-chemotherapy of cancer using 1 MHz ultrasound waves and a cisplatin-loaded sonosensitizing nanoplatform: An in vivo study”

Cancer chemotherapy and pharmacology, Volume 84, September 2019, page 1315-1321,  
(<https://doi.org/10.1007/s00280-019-03961-9>)

6- Ali Abbasian Ardakani, Alireza Rasekhi, Afshin Mohammadi, Ebrahim Motevalian, **Bahareh Khalili Najafabad**

“Differentiation between metastatic and tumour-free cervical lymph nodes in patients with papillary thyroid carcinoma by grey-scale sonographic texture analysis”

Polish Journal of Radiology, Volume 83, February 2018, page 37-46, (<https://doi.org/10.5114/pjr.2018.75017>)

7- Ali Abbasian Ardakani, Afshin Mohammadi, **Bahareh Khalili Najafabad**, Jamileh Abolghasemi

“Assessment of Kidney Function After Allograft Transplantation by Texture Analysis”

Iranian journal of kidney diseases, Volume 11, March 2017, page 157-164,  
(<https://pubmed.ncbi.nlm.nih.gov/28270649/>)

8- AA Ardakani, S Nabavi, A Farzan, **B Najafabad**

“Quantitative MRI texture analysis in differentiating enhancing and non-enhancing T1-hypointense lesions without application of contrast agent in multiple sclerosis”

Czech and Slovak Neurol. Neurosurg, Volume 113, January 2017, page 700-707, (<https://doi:10.14735/amcsnn2017700>)

## Thesis

- **PhD Thesis:** In vitro study of the effects of photodynamic / photothermal processes on cancer stem cells pretreated with magnetic hyperthermia mediated by a tranostic nanostructure.

**Supervisors.** Dr. Ameneh Sazgarnia.

Full Professor of Medical Physics, Department of Medical Physics, Mashhad University of Medical Sciences

- **Master of Science Thesis:** Evaluation of the effect of ultrasound-induced hyperthermia with tranostic gold nanoparticles loaded with cisplatin on CT26 colon cancer in Balb/c mice.

**Supervisors:** Dr. Ali Shakeri-zadeh.

Assistant Professor of Medical Physics, Johns Hopkins University

## **Manuscripts with under review state**

- 1- The superiority of using non-ionizing methods compared to common cancer treatment methods in dealing with cancer stem cells
- 2- The use of sonodynamic therapy with PpIX-containing micelle to eliminate the 4T1 tumor in a mice
- 3- Exploring the impact of gold-coated CoFe<sub>2</sub>O<sub>4</sub> theranostic magnetic nanostructures on enhancing the contrast of MRI images and inducing hyperthermia within cell environments

## **Research Activity**

- Synthesis of advanced nanoparticles
- Application of these nanoparticles at in vitro and in vivo settings.
- Using Non-ionizing radiation devices to investigate the efficacy of these nanoparticles in non-ionizing radiation treatments.
- Conducting light-based and ultrasound-based treatments at in vitro and in vivo settings.
- The use of magnetic hyperthermia and magnetic nanoparticles in cancer studies.
- Performing tests related to flow cytometry.
- Studying on cancer stem cells and investigating the effect of different treatments on them.
- Photodynamic therapy
- Photothermal therapy
- Sonodynamic therapy

Goals:

To improve cancer treatments by using new nanoparticles.

To investigate the problem of common cancer treatment methods in dealing with cancer stem cells and the approach to dealing with cancer from the aspect of destroying cancer stem cells

## **Scientific honors and rewards:**

Received the best book award at the Youth Year Book Festival (Aug 2019)

Associated with Iran University of Medical Sciences (IUMS)

## Published Conference Poster and Abstracts

- 1) A review of the epidemiology of gastrointestinal cancers in Iran, The third international gastrointestinal cancer congress, (ID code p3-15)
- 2) The Role of Spirituality and Spiritual health in patients with gastrointestinal cancer, The third international gastrointestinal cancer congress, (ID code p3-16)

## Books Written or Translated

- 1) MRI at a glance

Dr. Ali Mohammadzadeh, **Bahareh Khalili Najafabad**, Ali Abbasian Ardakani, Sobhan Publications, 2017 Tehran, Iran (Translation).

- 2) Fundamentals and advanced ultrasound techniques in diagnosis and treatment

Dr. Mohammad Baqer Shiran, **Bahareh Khalili Najafabad**, Ali Abbasian Ardakani, Royan Pajoo Publications, Tehran, Iran (Compilation and collection).

- 3) Digital Radiography: Physical Principles and Quality Control

Dr. Ali Abbasian Ardakani, Dr. Faribors Faeghi, **Bahare Khalili Najafabad**, Abolfazl Sarikhani .Shahid Beheshti University of Medical Sciences Publications,2022 Tehran.Iran (Translation)

- 4) Laser in Ophthalmology is being published (Translation).

## volunteer experiences

- Training and working in radiotherapy section:
  - Patient positioning
  - Treatment planning
  - QA in radiotherapy

## Volunteer courses

- Python
- Machin Learning
- Deep Learning

## Skills

- Synthesis different kind of nanoparticles
- Characterization of nanoparticle from different aspects.
- Photodynamic therapy
- Phothothermal therapy
- Magnetic hyperthermia
- Sonodynamic therapy
- Cold plasma therapy
- Working with different kinds of lasers
- Working with device like UV-Visible spectrophotometer, spectrometer, fluorimeter  
IR camera
- Working with cancer stem cells
- Cell culture skills and working with various types of cancerous cell lines
- MTT assay and cell counting
- Cloning and gene expression
- Basic and fluorescence microscopy
- Flow cytometry and analysis
- Handling of animal models

- Drug delivery with nanoparticle
- Release assay and up take measurement of nanoparticle in cells
- Combination therapy (in vitro and in vivo)
- Working with different treatments modalities like digital radiology, CT scan, MRI
- Positioning and treatment planning in radiotherapy

## **Soft Skills**

- Microsoft Word, Excel, and Power Point
- EndNote
- SPSS
- Optilink
- Testo
- Anaconda
- Pycharm

## **Language**

- Persian (Native)
- Azerbaijani (Native)
- Turkish
- English

## **References**

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Full Professor of Immunology  
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