

Curriculum Vitae

PERSONAL INFORMATION

Dr. Sedigheh- Marjaneh Hejazi


Associate professor

Tehran University of Medical Sciences

Medicine Faculty

Medical Physics Department

Poursina Street

 ++98 21 6646 6383

FAX: ++98 21 6658 1533

 mhejazi@sina.tums.ac.ir

Education and Work Experiences

1984-1988	Study of Radiation Technology at Iran University of Medical Sciences
1990-1993	Master of Science of Medical Physics at Tehran University of Medical Sciences(TUMS)
1993-2000	I have worked as a scientific member at TUMS Medical Physics Department since 1993.
2000-2004	Doctoral courses at TUMS, Medical Physics Department
2004-2005	Doctoral thesis at the University of Bern, Applied Physics, Biophotonics Department. Under supervision of Professor Frenz. Comprehensive comparison of Laser –induced Ultrasound detection system in view of sensitivity and applicability for medical diagnosis
2005	Promotion to the post of Assistant professor
2006	Visiting Researcher in Nano optics groups. ETH, Zurich, Switzerland
2007	Workshop of small animal imaging at Stanford University
2008	Became head of Laser and optics group at Research Center of Science and Technology of TUMS
2009	Visiting researcher at Biomedical Engineering ETH, Zurich,Switzerland
2010	Became research deputy of Medical Physics Department of TUMS
2011	Sabbatical at Biomedical Engineering ETH, Zurich,Switzerland
2012	Promoted from assistant professor to Associate professor
2013	Became deputy education of Phd by research student of RCSTM and Medical physics group

Personal Skills

Mother Tongue: Persian

Other Languages: English

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
C1	C1	C1	C1	C1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user Common European Framework of Reference for Languages

Computer Skills

Word, Power Point, Matlab, NIRFAST, TOAST

Publications

1-**M.Hejazi**, M.D Abolhassani, A. Ahmadian,"Comparison of Laser-Ultrasound Detection Systems Sensitivity with a Broadband Ultrasonic Source for Biomedical Applications", Archives of Medical Research. 2006; 37:322-327

2-J.J. Niederhauser , M. Jaeger , **M. Hejazi** , H. Keppner b, M. Frenz "Transparent ITO coated PVDF transducer for optoacoustic depth profiling" Optics Communication, 2005; 401-406

3-M. Jaeger, J.J Niederhauser, **M Hejazi**, M Frenz".Diffraction-free acoustic detection for optoacoustic depth profiling of tissue using an optically transparent polyvinylidene fluoride pressure transducer operated in backward and forward mode".,Journal of Biomedical Optic.2005 .10(02), p. 1-7

4 -M. D Abolhassani, **M. Hejazi**, A. Ahmadian," A comparison study of an optical detection system sensitivity with those of PVDF detection system and PVDF needle

hydrophone in a same acoustic field for optoacoustic tomography".Chinese Optics Letters.11(3). 2005.

5-**M.Hejazi**".Optical Stress transducer with high sensitivity and high bandwidth for medical applications" Iranian Medical Physics Journal.5 (2).2005.

6- A. shirkavand, S.Sarkar, **M.Hejazi**, L.Ataei, M.R.Alinaghizadeh,"Evaluation of LITCIT software for thermal simulation of superficial lasers like hair removal lasers", Indian Journal of Dermatology;2007 52(3), 145-149.

7-A.Shirkavand,.S.Sarkar,**M.Hejazi**,**L.Ataie**-Fashtami,.Alinaghizadeh."A new Monte Carlo code used for absorption simulation of skin-tissue. Interaction", Chinenese Optics Letter.2007 5, 238-240 .

8-**M Hejazi**, Alois Renn, M. An Oghabian, R Massudi Characterizing point spread functions of wide field epi-illumination microscopy using quantum dot in turbid medium. Iranian Laser in medicine. 5(1) 1387,25-31.2007.

9-Evaluation of LITCIT software for thermal simulation of superficial lasers like hair removal lasers skin tissue. A.Shirkavand,.S.Sarkar,**M.Hejazi**,**L.Ataie**-Fashtami,.Alinaghizadeh125(1) 1387,7-11.2007.

10- Measurment of choroidal neovascular area in Age-related macular degeneration using modified Otsu's thresholding method, Hanieh Mohammadreza, **Marjaneh Hejazi**, MohammadAli Oghabian, Alireza Ahmadian, Masoud Naseripour, Mohammadreza Zarin, Khalil Ghasemi, Hosein Nazari, Iranian Medical Physics Journal, Vol.5,No.2,p.77-84,2008

11-Evaluation of reflection optical imaging characteristic using fluorescence with near infrared wavelength at different depths of tissue equivalent phantom, Hamed Shoghi, **Marjaneh Hejazi**, MohammadAli Oghabian, Reza Massoudi, Hanieh Mohammadreza, Afshan Shirkavand, Lasers in medicine Journal, Vol.5, No.3&4,p.29,2008

12- Development of an algorithm for reducing scatter distribution in fluorescence images using Wiener filter in wavelet domain, E.B.Najafzadeh, **M.hejazi**, H.Mohammadreza, M.Rudin, F.Stuker, A.Shirkavand. O. Dössel and W.C. Schlegel (Eds.): WC IFMBE Proceedings 25/IV, p. 1869–1872, 2009.

- 13- M A.Ansari, R Massudi, **M HEjazi**. Experimental and numerical study on simultaneous effects of scattering and absorption on fluorescence spectroscopy of a breast phantom . *Optics and laser Technology*,2009 Volume 41, Issue 6, September 2009, Pages 746-750
- 14- **M Hejazi**, F Stuker, D Vats, and M Rudin. Improving the accuracy of a solid spherical source radius and depth estimation using the diffusion equation in fluorescence reflectance mode,2010 *Biomedical Engineering online*,9:28.
- 15- K.Ghasemi,H.Mohammad reza, **M.Hejazi**.(corresponding author). A Modified Semiautomatic Method for Measurement of Hyperfluorescence Area in Fluorescein Angiography *Journal, Iranian Journal of Ophthalmology* 22(4),73-79, 2010
- 16- L.Ataie-Fashtami, A. Shirkavand,S.Sarkar, M.R.Alinaghizadeh, **M.Hejazi** Simulation of Heat distribution and thermal damage patterns of diode laser. *Photomedicine Laser Surgery*. 2011 Jul;29(7):509-15.
- 17-M.Hossenli, **M.Hejazi**.(corresponding author) Determination of experimental Tumor Volume of a mouse using optical imaging system in different processing stages. *Lasers in Medicine*, 2011; 8 (1).
- 18-E.Najafzadeh,**M.Hejazi**(corresponding author). In vitro multispectral fluorescence imaging using linear unmixing in reflectance mode.*Iranian Journal of Medical Physics*.2012(in Press).
- 19- T.Jahanfar, **M. Hejazi** (corresponding author). Solve The Forward Problems By Green Function In New Fluorescence Molecular Tomography Imaging System. *WC IFMBE Proceedings* 2012(in press)
- 20- Development and evaluation of a multislice fluorescence molecular tomography using finite element method. **M Hejazi** ; S Sarkar ; H Mohammadreza ; T Jahanfar ; M Karimi *Proc. SPIE* 8799, Diffuse Optical Imaging IV, 87990R (June 14, 2013);
- 21- Development of a semi-automatic method for quantifying the area of the autofluorescence distribution in Fundus autofluorescence images of patient with CME(in press)

Invention

Fluorescence molecular tomography multislice imaging system (submitted as patent)

Book

Medical Physics for medical students

Proceedings

1. Development and evaluation of a multislice fluorescence molecular tomography using finite element method, ECBO, 2013, Munich, Germany
2. Development of Intensity Spatial Distribution Based on the Green's function In New Fluorescence Molecular Tomography Imaging System, WMIC 2012, Dublin, Ireland
3. Development of a semi-automatic method for quantifying the area of the autofluorescence distribution in Fundus autofluorescence images of patient with CME, 21st Congress of 21th Ophthalmology Congress on IRAN, 14-17 November 2011, TEHRAN – IRAN
4. Introduction to Schiempflug imaging. 21th Ophthalmology Congress on IRAN, 14-17 November 2011, TEHRAN – IRAN. Shiraz farx
5. Multispectral imaging in FRI with QDs. 1st MEFOMP International Conference of Medical Physics. 26 to 28 October 2011. Shiraz. Fars
6. Development of intensity spatial distribution in homogenous turbid media using Green's function. 1st MEFOMP International Conference of Medical Physics. 26 to 28 October 2011. Shiraz. Fars
7. Increasing depth of light penetration in fluorescence molecular imaging using fluorescence resonance energy transfer. 1st MEFOMP International Conference of Medical Physics. 26 to 28 October 2011.
8. -Optical biomedical diagnosis, Iranian congress of Laser, Imam Khomeini Hospital, Tehran, 2010, Iran.
9. - Auto-fluorescence imaging method of retina, Farabi Hospital, Tehran 2010, Iran.
10. - Biomedical molecular imaging, The fifth congress of Iranian laser association, Milad Hospital, Tehran, 2010, Iran.
11. -Compare Non- Negative Matrix Factorization with Singular Value Decomposition method for obtaining the unmixed fluorescence spectra of a mouse tissue using FRI World Molecular, Kyoto, 2010, Japan.
12. -Introduction to new imaging method for measuring the lens thickness, 9th Congress of Iranian Medical Physics, Tehran, 2010, Iran.

13. Design and implementation of the fluorescence molecular imaging. 9th Congress of Iranian Medical Physics, Tehran, 2010, Iran.
14. Development of an algorithm for reducing scatter distribution in fluorescence images using Wiener filter in wavelet domain 11th International congress of the IUPESM, Medical Physics and biomedical engineering , Munich, 2009,Germany.
15. Improvement of depth reconstruction in optical imaging using diffusion equation for spherical sources, 15th congress of Iranian optics and photonics, Isfahan 2009, Iran
16. Increase depth reconstruction accuracy of fluorescence reflectance imaging using improved depth dependent point spread function, World Molecular Imaging congress,France 2008
17. Introduction and evaluation of LITCIT software for thermal simulation of superficial hair removal lasers. European Dermatology and Venereology.Vienna.2007
18. Photoacoustic tomography of a tissue phantom using a two-dimensional optical stress transducer World Congress on Medical Physics and Biomedical Engineering 2006, South Korea
19. Design of a confocal microscope for investigating absorption coefficient. 13th Conference on optics and Photons of Iran , Rafsanjan, 2006
20. First Regional conference IEEE in medicine & Biology 14th Conference of Biomedical Engineering of India. 1995
21. 7th Conference on biomedical Engineering, Sharif University of Technology, 1994
22. 5th Conference on biomedical Engineering, Iran University of Science and Technology

Teaching: 1993-2013

- 1-Lasers and optics in medicine-Graduate course
- 2-Medical Physics for Medical students-Under graduate course
- 3-Physics of. Clinical laboratory. Instruments-Graduate course
- 4-General Physics-Under Graduate Courses

5-Ultrasonography for medical students and Phd students

6-Physics of Medical imaging systems-Graduate

7-Matlab laboratories-Graduate

8- Nanobiotechnology

9-Mathematics for Medical Physics students

10-Biomedical Spectroscopy

11-Molecular Imaging

12-Laser Safety

Research

2007-.Design and implementation of typical optical system for evaluating depth dependent fluorescence intensity of semiconductor fluorophores in rat

2007- Lymph node imaging using semiconductor crystal for diagnosis and determining of stage of cancer

2006- Characterizing point spread functions of wide field epi-illumination microscopy using quantum dot in turbid medium

2006-Measurement of depth of tumor labeled with a specific fluorescent in a breast phantom using an angled fiber-optic probe

Student's supervision

1-Afshan Shirkavand, Simulation of absorption and heat distribution of Diode hair removal laser in skin tissue

2-Mohammad Bari, Evaluation of effective parameters of fluorophores signal intensity in the tissue-equivalent phantom

3- Hanieh Mohammad Reza, Improved images of eye retina angiography for visualization neovascularization at age-related macular degeneration

4- Hamed Shoghi, Evaluation of reflection optical imaging characteristics using fluorescence with excitation wavelength at near infrared embedded in different depths of tissue equivalent phantom

5- Hoda Bokaii, Design of confocal microscope for phantom imaging

6- Mohammad Ansari, Investigation of diffusion of Electromagnetic radiation in tissue.

7- Malieh Hoseini, Determination of tumor volume in mouse using fluorescence molecular imaging.

8-Ebrahim Najafzadeh, Separation of fluorescence emission spectra of multispectral reflectance imaging using linear unmixing in tissue like phantom

9- Hoosien Bigdeli- Development an optical and a geometrical distortion correction algorithm for Scheimpflug Pentacam quantitative imaging of intraocular lens.

10- Toktam Jahanfar, Deriving green's function for fluorescence molecular imaging in transmission mode.

11- Azadeh Vafai, improvement of high order eye aberration by Shack Hartmann aberrometer using orthogonal polynomials

12-Sima Saleh. Design and Implementation of algorithms for image reconstruction using finite element method with fluorescent molecular tomography.

13- Parvin Mirzagavamin, Separation of fluorescence emission spectra of multispectral reflectance imaging using linear unmixing using nmf

14- Mohsen Ebrahimi, Point spread function optimization of fluorescence imaging system by reduction of excitation light leakage and measurement sensitivity enhancement using phantom equivalent of tissue

15-Ebrahimpoor Anita. Evaluation of FMT system in vivo

16- Talkhabi, M. Design and implementation of Photodynamic therapy optical setup

17-Darezeshki.Z. fusing of CT scan FMT and CT scan for small animal imaging

18-Hashemi,H. Adaption of reconstruction algorithm for FMT using finite element

Grants

2010: 11th Avicenna Festival

2004-2005: Bern University. Applied Physics Department, Biophotonics Department

2000-2004: Tehran University of Medical Sciences

1990-1993: Tehran University of Medical Sciences