



**Afshan Shirkavand**

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### ***Education:***

2015 –2020 PhD

(Bio) photonics, Laser & Plasma institute, Shahid Beheshti University, Tehran, Iran, G.P. A= 18.89

2004-2007 Master of Science

Medical Physics at Tehran University of Medical Sciences (TUMS), Department of Medical Physics and Biomedical Engineering, Tehran, Iran, G.P. A= 17.58

1996-2000 Bachelor of Science

Applied Physics (Atomics and Molecular Major), Al-Zahra University, Faculty of Basic Science, Department of Physics, Tehran, Iran, G.P. A= 15.21

1992-1996 Diploma

Mathematics and Physics, Tehran, Iran, G.P. A=18.52

### ***Dissertations:***

2017-2020- PhD dissertation:

Conducted in Laser and plasma research institute, Shahid Beheshti University, Tehran, Iran

Under supervision of Dr. Ezeddin Mohajerani (Professor of Photonics in SBU)

Under consultancy of Dr. Shirin Farivar (Associate professor of Genetics and stem cells in SBU)

And Dr. Leila Ataie-Fashtami (M.D, Assistant professor of dermatology in Academic Center for Education, Culture and Research (ACECR)

**“Feasibility of reflectance spectroscopy as a non-destructive, quantitative technique for A375 melanoma cancer cells treatment response monitoring to vemurafenib: A pilot in-vitro study”**

Score of thesis: 20

2006-2007- M.Sc thesis

With a grant of Tehran University of Medical Science (TUMS), medical physics Department, Tehran, Iran

Under supervision of Dr. Saeed Sarkar (Professor of TUMS and the head of Research center for science and technology in medicine) and Dr. Marjaneh Hejazi (Professor of TUMS)

Under consultancy of Dr. Leila Ataie-Fashtami (M.D, Assistant professor of dermatology in Academic Center for Education, Culture and Research (ACECR) and Dr. Mohammad Reza Alinaghizadeh (PhD of medical physics, technical manager of Noor Medical Imaging Center)

**"Simulation of heat distribution and thermal damage patterns due to 810nm Diode laser hair removal in skin-hair tissues"**, score of thesis: 19.7

### ***Work experience:***

2010 to date:

-Research member, Research Center of Medical Lasers, ACECR, Tehran, Iran

-Part time private Medical Physicist, health physicist, Pardis Noor & Pardis Noor Salamat & Pardis Noor Niloo complex medical imaging centers, Tehran, Iran

2006 – 2010:

-Researcher, Research center for Science and Technology in Medicine (RSCTIM), Imam Hospital complex, Tehran, Iran

2000-2004:

-Physics and mathematics Teacher

### ***Publications:***

1- Afshan. Shirkavand, S. Sarkar, M. Hejazi, L. Ataie-Fashtami, M. R. Alinaghizadeh. Evaluation of a new Monte Carlo code used for absorption simulation of Laser-skin tissue interactions. Chin. Opt. Lett, 2007, 5:4, 238-240, April 10,

2- Afshan. Shirkavand, S. Sarkar, M. Hejazi, L. Ataie-Fashtami, 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

- 3- H. Shoughi, M. Hejazi, M. A. Oghabian, R. Massoudi, H. Mohammadreza, [Afshan Shirkavand](#), Evaluation of reflection optical imaging characteristics using fluorescence with near infrared wavelength at different depths of tissue equivalent phantom. *Laser in medicine*; 2008, 5(3, 4), 29-35
- 4- S. Akhlaghpour, M. Alinaghizadeh, A. Arjmand Shabestari, A.H. Jafari, [Afshan Shirkavand](#), Cardiac and Liver T2\* Measurement in 2000 Thalassemia Patients, *Iranian Journal of Radiology* 2009; 6:1, 98
- 5- L. Ataie-Fashtami, [Afshan Shirkavand](#), S. Sarkar, M. R. Alinaghizadeh, M. Hejazi, M. Fateh, Gh. Javid, N. Zand, H. Mohammadreza. Simulation of Heat Distribution and Thermal Damage Patterns of Diode Hair Removal lasers: An Applicable Method for Optimizing Treatment Parameters. *Photomedicine and laser surgery journal*, July 2011, 29:7, 509-515
- 6- [Afshan Shirkavand](#), L. Ataie-Fashtami, S. Sarkar, M. R. Alinaghizadeh, M. Fateh, Gh. Javid, N. Zand, Thermal damage patterns of diode hair removal lasers according to various skin types and hair densities and colors: A simulation study, *Photomedicine and laser surgery journal*, 2012, 30:7
- 7- Hashemieh M, Azarkeivan A, Akhlaghpour S, [Shirkavand A](#), Sheibani K, T2-star (T2\*) magnetic resonance imaging for assessment of kidney iron overload in thalassemia patients, *Arch Iran Med*. Feb 2012;15:2, 91-4
- 8-Hashemieh M, Akhlaghpour S, Azarkeivan A, Aziza Hari A, [Shirkavand A](#), Sheibani K, Partial radiofrequency ablation of the spleen in thalassemia, *Diagn Interv Radiol*. 2012 Jul-Aug; 18:4, 397-402
- 9- N. Zand, M. Fateh, L. Ataie-Fashtami, G. Djavid, M. Fatemi, and [Afshan Shirkavand](#), Promoting Wound Healing in Minor Recurrent Aphthous Stomatitis by Non-Thermal, Non-Ablative, *Photomedicine and Laser Surgery*, 2012, 0:12
- 10- A. Azarkeivan, M. Hashemieh, S. Akhlaghpour, [A. Shirkavand](#), M. Yaseri and K. Sheibani, Relation between serum ferritin and liver and heart MRI T2\* in beta thalassaemia major patients, *Eastern Mediterranean Health Journal La Revue de Santé de la Méditerranéorientale*, EMHJ 2013, 19(8),
- 11- [Afshan Shirkavand](#), M. E. Zibaie, Applications of Graphene Nano-sensor in DNA sequencing, *Laser Medicine Journal* 2015, 12:1
- 12- [Afshan Shirkavand](#), L. Ataie-Fashtami, Importance of laser safety in laser medical applications, *Laser in Medicine Journal* 2015, 13:2, 3
- 13- N. Zand, [Afshan Shirkavand](#), Laser assisted skin healing, *Dermatology and Cosmetic* 2015; 6:4, 227-235

- 14- A. Azarkeivan, M. Hashemieh, [Afshan Shirkavand](#), K. Sheibani, Correlation between Heart, Liver and Pancreas Hemosiderosis Measured by MRI T2\* among Thalassemia Major Patients from Iran, Archives of Iranian medicine, 2016, 19: 2, 96-100
- 15- N. Zand, P. Mansouri, M. Fateh, L. Ataie-Fashtami, S. Rezaee Khiabanloo, F. Safar, R. Chalangari, K. Martits, [Afshan Shirkavand](#), Relieving Pain in Oral Lesions of Pemphigus Vulgaris Using the Non-ablative, Non-thermal, CO2 Laser Therapy (NTCLT): Preliminary Results of a Novel Approach, J Lasers Med Sci 2017; 8: 1, 7-12
- 16- [Afshan Shirkavand](#), S. Sarkar, L. Ataie-Fashtami, H. Mohammadreza, Detection of Melanoma Skin Cancer by Elastic Scattering Spectrums: A Proposed Classification Method, Iranian journal of medical physics, 2017, 14:3
- 17- M. Babadi, E. Mohajerani, [Afshan Shirkavand](#), L. Ataie Fashtami, N. Zand, Study on Application of diffuse reflectance spectroscopy in quantitative evaluation of the skin erythema following laser hair removal, Laser in medicine, 2017, 13:2
- 18- N. Zand, [Afshan Shirkavand](#), Letter regarding. Effect of laser on pain relief and wound healing of recurrent aphthous stomatitis: a systematic review, Lasers in Med Sci. 2017, 32:8
- 19- [Afshan. Shirkavand](#), P. Mokhtari Hesari, S. Akhlaghpour, A. Azarkeivan, M. Hashemieh, Renal iron load estimation in Thalassemia Patients using T2\* Magnetic Resonance Imaging, IJMRHS. 2019, 8: 4, 182-189
- 20- M. Babadi, E. Mohajerani, [Afshan Shirkavand](#), L. Ataie-Fashtami, N. Zand, Quantitative analysis of skin erythema due to laser hair removal: A diffuse optical spectroscopy analysis, journal of Lasers Med Sci, Spring 2019; 10:2, 97-103
- 21- [Afshan Shirkavand](#), M. Babadi, E. Najafzadeh, Laser in medical sciences: Review from past to now, Laser in Medicine, 2019, 15:3
- 22- P. Menshari, E. Mohajerani, [Afshan Shirkavand](#), M Zarabi, Quantitative determination of Hemoglobin Spectral absorption coefficient due to Optical Mechanical Clearing of Skin in Diffuse Reflective Spectroscopy Method, Laser Medicine 2019, 15:3
- 23- [Afshan Shirkavand](#), S. Farivar, E. Mohajerani, L. Ataie-Fashtami, M. Hossein Ghazimoradi, Non-invasive reflectance spectroscopy for normal and cancerous skin cells refractive index determination: An in-vitro study, Laser and Surgery in medicine, October 2019, 51:8, 742-751
- 24- [Afshan Shirkavand](#), S. Farivar, Optogenetics, importance and limitations, Laser in Medicine, 2019, 16:1

- 25- F Habibi, H Mehrzad, E Mohajerani, [Afshan Shirkavand](#), Super plasmonic visible for biosensing, *Laser in Medicine*, 2019, 16:2
- 26- [Afshan Shirkavand](#), A Rahimi, M Babadi, laser applications in oral cancer diseases, *Laser in Medicine*, 2019, 16:2
- 27- [Afshan Shirkavand](#) , L. Ataie Fashtami, Z. Korourian, Applied Lasers in Acne Scar Treatment: A Brief Review, *Global Journal of Dermatology & Venereology*, 2019, 7, 22-27
- 28- [Afshan Shirkavand](#), S. Farivar, E. Mohajerani, L. Ataie-Fashtami, M. H. Ghazimoradi, Monitoring the response of skin Melanoma cell line (A375) to treatment with vemurafenib: A Pilot *in-vitro* Optical spectroscopic study, *Photomedicine and Laser Surgery*, March 2020
- 29- [Afshan Shirkavand](#), E. Mohajerani, S. Farivar, L. Ataie-Fashtami, M.H. Ghazimoradi, Quantitative autofluorescence of A375 human melanoma cell samples: A pilot imaging study, *Journal of lasers in medical sciences*, Accepted, September 2020
- 30- M. Karimi, A. Azarkeivan, S. Haghpanah, Z. Zahedi, T. Zarei, Akhavan Tavakkoli, A. Bazrafshan, [Afshan Shirkavand](#), V. Desantis, Prevalence and Mortality due to Outbreak of Novel Coronavirus Disease (COVID-19) in  $\beta$ -Thalassemia: The Nationwide Iranian Experience, *The British Journal of Hematology*, 2020
- 31- M. Karimi, S. Haghpanah, T. Zarei, A. Azarkeivan, [Afshan Shirkavand](#), S. Matin, M. Akhavan Tavakkoli, Z. Zahedi, V. De Sanctis, Prevalence and Severity of Coronavirus Disease 2019(COVID-19) in Transfusion Dependent and Non-Transfusion Dependent  $\beta$  -Thalassemia Patients and effects of Associated Comorbidities: An Iranian Nationwide study, *Acta Biomed* 2020; Vol. 91, N. 3: e2020007
- 32- [Afshan Shirkavand](#), M. Akhavan Tavakkoli. A review on phototherapy in wound healing. *Laser in Medicine*, 2020, 17:1
- 33- [Afshan Shirkavand](#), L. Mohammadzadeh, M.E. Zibaie, N Zand, the induced heat modeling using COMSOL software in nerve due to Nd: YAG laser irradiation, *Laser in Medicine*, 2021, In press
- 34- S. Afzali, [Afshan Shirkavand](#), S. Farivar, S Shiyari, COVID-19 pandemic: A review on molecular and clinical diagnostic aspects, *Archives of Pediatric Infectious Diseases*. In review, 2021.
- 35- [Afshan Shirkavand](#), N. Zand, P. Mansouri, L. Ataie Fashtami, M. Fateh, The Immediate pain relieving effects of Non-Thermal CO2 Laser Therapy (NTCLT) on oral aphthous ulcers of behcet's disease: a case report. *Lasers in Med Sic*, In review, 2021.

### ***Presentations:***

May 2007- Introduction and evaluation of the LITCIT software for thermal simulation of superficial hair removal lasers. 16<sup>th</sup> European Dermatology and Venereology congress. Vienna.

April 2007- Simulation of temperature distribution for optimizing treatment parameters of Diode hair removal lasers, International Razi congress of dermatology, Tehran, Iran

2008- Simulation of heat distribution and thermal damage in order to optimize treatment parameters of Diode hair removal lasers, annual congress of American society of laser in medicine and surgery, April, Loss Angeles, USA,

Jan 2009- Depth reconstruction optimization for spherical sources in optical imaging using diffusion equation, 15<sup>th</sup> Iranian conference on optics and photonics and 1<sup>st</sup> Iranian conference on photonics Engineering, university of Isfahan,

May 2010- Proposing a scatter reduction algorithm for fluorescence reflectance images using Wiener filter in Wavelet domain, 9<sup>th</sup> Iranian congress of Medical Physics, Tehran, Iran,

2010 -Thermal damage modeling for investigation the role of hair density in laser hair removal, accepted as e-poster at Laser Helsinki congress

May 2010- Setting-up and construction fluorescence optical imaging system, 9<sup>th</sup> Iranian congress of Medical Physics, Tehran, Iran,

Nov 2011- Modeling of heat distribution and thermal damage patterns of diode hair removal lasers for various skin types, The 1<sup>st</sup> MEFOMP international conference of medical physics, Shiraz, Iran,

April 2013- Early Detection of Melanoma Skin Cancer by Elastic Scattering Spectrums: A classification code, Advanced School on Modern Trends of Biophotonics for Diagnosis and Treatment of Cancer and Microbial Control”, held in São Carlos, São Paulo, Brazil,

October 2013-Phosphor 32 particles Radioembolization of the Spleen in thalassemicpatients: A case report, 13<sup>th</sup> International Conference on Thalassaemia & Haemoglobinopathies, Abu Dhabi, UAE,

2015- Imaging modalities in wound healing assessment, 2<sup>nd</sup> national congress of wound care, Tehran, Iran,

2015- Biosensors in wound healing assessment, 2<sup>nd</sup> national congress of wound care, Tehran, Iran,

2016-Noninvasive Optical Technologies for Wound Imaging, 3<sup>rd</sup> national congress of wound care, Tehran, Iran,

2017- Analysis of erythema due to laser hair removal by using diffuse reflectance spectroscopy, 23<sup>rd</sup> Iranian Conference on Optics and Photonics (ICOP 2017) and the 9<sup>th</sup> Iranian Conference on Photonics Engineering and Technology (ICPET 2017), , Tehran, Iran,

2017- Noninvasive optical spectroscopy methods for dental applications, international conference on laser in dental and oral diseases, Tehran,

2017- Noninvasive Optical Imaging Application in Breast Cancer, 9th Edition of the International Tehran Breast Cancer Congress (TBCC9), Tehran,

2017- Fluorescence optical imaging for wound assessment and monitoring, the 2<sup>nd</sup> international congress on wound and tissue repair,

2017-Analysis of erythema due to laser hair removal by using diffuse reflectance spectroscopy, 23rd Iranian Conference on Optics and Photonics (ICOP 2017) and the 9th Iranian Conference on Photonics Engineering and Technology (ICPET 2017), Tehran, Iran,

2018- Day light importance and alternatives in PDT and diagnosis, the 3rd international congress on wound and tissue repair, Tehran, Iran

2019- Optical reflectance spectroscopy for skin cells 'refractive index determination, Clin Dermatol Res J 2019, Volume 04, 19th European Dermatology Congress, Amsterdam, Netherlands

2019- Thalassemia prevention program in Iran; Unique experience in Middle east, Hamburg, Germany

2020- Evaluation of surgical wound healing process using non-invasive Diffusion reflectance spectroscopy, WTRC 2020, Tehran, Iran,

2020- Effects of gold Nano-island layer on the photoluminescence spectrum of Fabry-Perot cavity based on dye doped nematic liquid crystal, ICOP 2020, Karaj, Iran,

2020- Lithography-free visible plasmonic super absorber based on Ag Nano-island layer, ICOP 2020, Karaj, Iran,

July 2020- Treatment Response Monitoring of Skin Melanoma Cell line (A375) with Vemurafenib using Optical Spectroscopic: An in-vitro Study, ELISS 2020 ELI summer school, Szeged, Hungary.

July 2020- Refractive index determination of cancer melanoma skin cells' using optical reflectance spectroscopy, ELISS 2020 ELI summer school, Szeged, Hungary.

2020 August- Optical Spectroscopy Study of Treatment Response Monitoring of A375 Skin Melanoma Cell Line: An In-Vitro Model, TPFC preclinical imaging symposium, Tehran, Iran.

2021- Determination of optical refractive index and electrical permittivity for differential detection of healthy and cancerous human cells by reflectance spectroscopy, The 27th Iranian Conference on Optics and Photonics (ICOP 2021), The 12th Iranian Conference on Photonics Engineering and Technology (ICPET 2021), University of Siastan and Baluchistan, Zahedan, Iran, Jan. 2021.

### ***Research projects:***

2007- Studying the effect of hair density and types on heat distribution and thermal damage patterns of Diode hair removal laser in order to optimizing of treatment process. Research center of science and technology in medicine,

2008- Studying the effect of various skin types on heat distribution and thermal damage pattern of Diode hair removal laser in order to optimizing of treatment process. Research center of science and technology in medicine,

2009- Fluorescent molecular optical imaging research for early detection of breast cancer, research center of science and technology in medicine.

2010- A case study of interventional partial splenectomy using RF and phosphorous radioisotopes

2013- T2-star (T2\*) magnetic resonance imaging for assessment of pancreas and kidney iron overload in Iranian thalassemia patients

2016- Evaluating the efficacy and safety of Er: YAG laser assisted autologous epidermal cell transplantation in vitiligo patients, Royan Institute

2017- Classification code for elastic scattering spectrums of malignant skin lesions

2020- Temperature and exposure time assessment of CO2 laser for the purpose of non-thermal treatment, NTCLT (Non-Thermal CO2 Laser Therapy), Tehran, Iran

2020- Analysis of induced heating in optical neuronal guidance due to Nd:Yag laser irradiation using COMSOL software

### ***Scientific participation:***

2019- Workshop of capacity building for NGOs. Hamburg, Germany

2016- 2019- Member of the scientific committee of the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> international congress on wound and tissue repair,

### ***Editorial Board member:***

2019-Editorial Board member of Global Journal of Dermatology & Venereology, Synergy Publishers

### ***Teaching:***

Lecturer of physics course in Low Level Laser Therapy workshop, ACECR, Tehran, Iran



### ***Membership:***

2019-date. TPAG committee member, Thalassemia International federation,  
2019-date. The Organization for Women in Science for the Developing World  
2018-date. Tehran Province National Elites Foundation, student section  
2015-date. ISMRM Iranian Chapter  
2015-date. Iranian Association of Photonics  
2004-date. Iranian Association of Medical Physics since

### ***Research Interests and skills:***

Cell culture, biomedical spectroscopy, Laser-tissue interaction modeling, Optical imaging, and biomedical photonics: skin diagnosis and therapy, Medical physics, Medical imaging, Raman spectroscopy, scientific writing

### ***Computer skills:***

Software: MATLAB, LITCIT (Laser-Induced-Temperature-Calculation-In-Tissue), Mendely, SPSS, Microsoft office (Word, PowerPoint, Excel, Access), MCML (Monte Carlo multi-layer), Image J, Origin lab, COMSOL,

### ***Languages:***

Persian Mother Tongue  
English Fluent written and spoken  
Spanish intermediate knowledge  
IELTS academic score: 6.5, Feb 2012  
GRE: Mathematics 710, Analytical score 3, Feb 2009

### ***Other activities:***

2020-Member of Publons Reviewer Connect

2019- Mentor on the Author AID network, OWSD.

2018, Member of organizing committee of 3rd International congress of wound and tissue repair, Tehran, Iran

2017, Member of organizing committee of 2nd International congress of wound and tissue repair, Tehran, Iran

2016, Member of organizing committee of 1st International congress of wound and tissue repair, Tehran, Iran

2016-date, Reviewer of Journal of lasers in medical sciences

2016-date, Reviewer of Iranian Journal of Medical Physics (IJMP)

2015, Reviewer of International Research Journal of Basic and Clinical Studies (IRJBCS)

2014, 2015, scientific committee of the 1<sup>st</sup> and 2<sup>nd</sup> Iranian congress of wound healing, Tehran, Iran

2013-date, Reviewer of Photomedicine and Laser Surgery Journal, USA

2010, Scientific committee of the Iran Laser 89 conference, Tehran, Iran

2008-date, Reviewer of Laser in medicine journal, Tehran, Iran

2008-date, reviewer of Iranian journal of breast cancer journal, Tehran, Iran

2008-2010, Member of organizing committee of 1st and 2nd Iranian Imaging informatics conferences, and 25<sup>th</sup>, 26<sup>th</sup>, 27<sup>th</sup> Iranian congress of radiology

### ***Books:***

2009, Translation of TIF booklets, About Thalassemia I, II, III into Persian, Teymourzadeh Publication, Tehran, Iran

2018- Fundamentals and experiments of optics for students and researchers (in Persian), Madreseh Publications, Tehran, Iran

2020- Translation of TIF leaflet in Bone marrow transplantation (BMT) into Persian, Teymourzadeh publications,

2020- Translation of All about Thalassemia, children book, into Persian, Teymourzadeh publications,

2021- Handbook of LLLT in dentistry (In Persian), Publications of Tehran medical university branch of ACECR (in press)

2021- Hemoglobin Disorders\_ Blood & COVID-19\_V2, (in Persian, in press)

2021- Hb Disorders& COVID-19\_Classification of Risk Groups\_V3, (in Persian, in press)

### ***Courses:***

Medical Imaging modalities; basic science

Physics of laser-tissue interaction

Laser applications in biomedical sciences

Laser and Radiation Safety

Physics of Nuclear Medicine

Image Processing

Biomedical Spectroscopy

Radiobiology

Laboratory technologies basic science

### ***Other Schools:***

June 2012-Stella summer school, Pavia University, Pavia, Italy  
Two photon microscopy and optical tweezers courses

April 2013- Advanced School on Modern Trends of Biophotonics for Diagnosis and Treatment of Cancer and Microbial Control, São Carlos Institute of Physics, Sao Carlos, Brazil

February 2014- ICTP Winter College on Optics and photonics, Trieste, Italy

July 2015-LAMILES 2015, Szeged University, Szeged, Hungary

July 2016- LAMILES 2016, Szeged University, Szeged, Hungary

January 2017- Advances in Optogenetics, Neurosafari, Tehran, Iran

February 2019- ICTP Winter College on Optics and photonics, Trieste, Italy

October 2019- Building capacity workshop for NGOs, Hamburg, German

August 2020- Medical imaging modalities in preclinical studies, TUMS Preclinical Core Facility, Tehran, Iran

### ***Honors:***

April 2018- Award winner of the Tehran Province National Elites Foundation, student section, Iran

December 2018- PhD student award grant of Tehran Province National Elites Foundation

March 2010- Colleague of the 11th Avicenna Festival prize for research project of setting-up Fluorescent molecular optical imaging research for detection of malignant cells in experimental tumors, Tehran University of Medical Sciences, Iran

October 2011- Young Scientist Award (YSA) candidate, the First International MEFOMP Conference of Medical Physics, Shiraz, Iran

### ***Interests:***

Keen on learning novel research skills

Eager to learn foreign languages

Keen on hand-made art and playing Piano

Interested in translation books and booklets into the Persian

## ***References:***

1. Dr. Saeed Sarkar, PhD, Prof of Medical physics, Institute of advanced technologies in medicine (IAMT) Tehran University of Medical Sciences, Tehran, Iran  
[sarkar@sina.tums.ac.ir](mailto:sarkar@sina.tums.ac.ir)
2. Dr. Shahram Akhlaghpour, M.D, Prof of Radiology, Tehran University of Medical Sciences, Pardis Noor Medical Imaging center, Tehran Iran  
[shahran\\_ak@yahoo.com](mailto:shahran_ak@yahoo.com)
3. Dr. Leila Ataie Fashtami, M.D, Assistant Prof of Dermatology, Cell Therapy department, Royan Institute, ACECR, Tehran, Iran  
[ataiefash@gmail.com](mailto:ataiefash@gmail.com)
4. Dr. Ezeddin Mohajerani, PhD, Prof. Physics, Laser and Plasma institute, Shahid Beheshti University. Tehran, Iran  
[e-mohajerani@sbu.ac.ir](mailto:e-mohajerani@sbu.ac.ir)
5. Dr. Henning Müller, PhD, Prof. HES-SO Valais, University of Applied Sciences Western Switzerland  
[Henning.mueller@hevs.ch](mailto:Henning.mueller@hevs.ch)