

PERSONAL INFORMATION**Masoud Sarraf**

 B,13,09, Petalz residence, Jalan Klang Lama, 58000, Kuala Lumpur, Malaysia.

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 [Umexpert](#) , [Google Scholar](#) , [LinkedIn](#)

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Date of birth 07/04/1985

WORK EXPERIENCE

Dec. 2017 - Current

Post- Doctoral Research Fellow

University of Malaya, Malaysia ([Education](#))

- Contribution in a number of research projects at Centre of Advanced Materials, Mechanical Engineering Department, Faculty of Engineering.
- Development of bioactive nanotubular antibacterial structures for musculoskeletal applications
- Development of mixed nanotube implants for biomedical applications.
- Structural and biological behaviors of TiO₂/Ag₂O and Ta₂O₅/Ag₂O nanotubular arrays on metallic alloys.
- Porous magnetic thermosensitive nanocarriers of chemotherapeutics for hyperthermia application.
- Development and tribocorrosion analysis of self-lubricating functionalized carbon nanotubular surfaces for harsh environments.
- Fabrication of hybrid nanotextures with a photovoltaic effect extended in a wide frequency range from UV-A to NIR through the localized plasmonic behavior
- Preparation of research proposals for grants.
- Supervision and mentor of postgraduate students.
- Supervision of several final year projects at Mechanical Department.
- Lecturer and lab demonstrator.

Sept. 2011-Nov. 2017

Research Assistant

University of Malaya, Malaysia ([Education](#))

- Mechanical and biological behaviors of nanostructured implants.
- Development and characterization of bilayer thin film structures.
- Developing wide range of metallic and ceramic coatings with PVD, EPD, PEO, CVD, thermal spray, and etc.
- Fabrication of highly-ordered nanotubular coatings on titanium-based implants for enhanced bioactivity.
- Fabrication of nanostructured coatings including nanotubular and nanoporous ceramic arrays by anodization.
- Mechanical and biocompatibility improvement of titanium and its alloys using thin film hard coatings.
- Development of bovine hydroxyapatite derived porous bone grafts for biomedical application.
- Corrosion behavior of nano-textured surface and effect on spectrally selective solar absorber performance.
- Optical characterization of TiO₂ nanotubular arrays for solar cell application.
- Estimation of thermal conductivity of Al₂O₃ nanoparticles in water (40%)–ethylene glycol (60%).
- Successful applications for a number of research grants.

Feb. 2008-Feb 2010

Mechanical Design Engineer and Consultant of Industrial Projects

Hamahang Nam Engineering Group ([Industrial](#))

- Consultation in heating, ventilation, and air conditioning (HVAC) system design.
- Piping design for natural gas (NG).
- Consultation in urban sewage system design.
- Draft and design of home and commercial air-conditioning systems.
- Implementation of functional tests on piping and air conditioning systems.
- Supervision of construction workers to ensure correct project execution.

EDUCATION

- Feb. 2014 – Aug. 2017 **PhD, Engineering (Advance Materials/Nanomaterial)**
 University of Malaya, Malaysia
 Associate Prof. Dr. Bushroa Binti Abdul Razak, Prof. Dr. Noor Hayaty Binti Abu Kasim
 Mechanical and Biological Behaviors of Titania and Tantala Nanotubular Arrays Decorated with Silver Oxide on Ti-6Al-4V Alloy
- Jan. 2011- Feb. 2013 **Master, Mechanical Engineering**
 University of Malaya, Malaysia
 Prof. Saidur Rahman
 Techno-Economic Analysis of Solar Home System (SHS) in Cambodia
- Oct. 2004 –Feb. 2010 **Bachelor, Mechanical Engineering (Heat and Fluid)**
 Islamic Azad University (IRAN)
 Dr. Mohammad Reza Faridzadeh
 Computing Facilities of Commercial and Office Buildings by Carrier Software

PERSONAL SKILLS

- Communication skills** ▪ Good communication skills gained through experience as researcher and participant in conferences.
- Organisational skills** ▪ Leadership (Responsible for several research teams)
 ▪ Supervision (One ongoing PhD and one completed master)
 ▪ Mentorship (Undergraduate and postgraduate projects)
 ▪ Proposal writing (Successful grant applications)
- Job-related skills** ▪ Biosurface modification with varied technologies such as PVD,PEO,EPD and anodization.
 ▪ Fabrication of thin films, nanotubular and nanoparticulate structures.
 ▪ Synthesis of a wide range of smart nanostructures.
 ▪ Chemical and physical characterization (FTIR, XRD, XPS, EDX, FESEM, AFM).
 ▪ Mechanical (adhesion test, friction test, microhardness test, nanoindentation test, scratch hardness test,), biotribology, and corrosion characterization.
 ▪ Biological assessment (Cell culture, biocompatibility/cytotoxicity tests using different cell lines and protocols, bioactivity tests, antibacterial assays).
- Research Interests** ▪ Nanofabrication and modification
 ▪ Biosurface engineering
 ▪ Porous and tubular structures
 ▪ Nanomaterials
 ▪ Biomaterials for tissue engineering
 ▪ Bio-tribocorrosion for medical implants

ADDITIONAL INFORMATION

Funded Projects

- Bovine Hydroxyapatite Derived Porous Bone Graft for Biomedical Applications- High Impact Research grant
Grant No: UM.C/HIR/MOHE/ENG/27
- Mechanical Properties and Biocompatibility Improvement of Titanium and its Alloys using Thin Film Hard Coatings- UM-Postgraduate Research Grant (PPP).
Grant No: PG081-2014B
- Development of Materials with Antibacterial Properties (Surface Coating) – University of Malaya Research Grant.
Grant No: PG266-2015B
- Corrosion Behavior of Nano-Textured Surface and Effect on Spectrally Selective Solar Absorber Performance.
UM-Postgraduate Research Grant (PPP).
Grant No: RP032C-15AET
- Tribocorrosion Characterization for Sustainable and Durable Cast Aluminium Alloys in Internal Combustion Engine, Ministry of Higher Education- Fundamental Research Grant Scheme (FRGS),
Grant No: FRGS/1/2015/TK05/UM/02/8

Publications

- 2019 **Masoud Sarraf**, Bahman Nasiri-Tabrizi, Ali Dabbagh, Wan Jeffrey Basirun, Nazatul Liana Sukiman "Optimized nanoporous alumina coating on AA3003-H14 aluminum alloy with enhanced tribo-corrosion performance in palm oil" *Ceramics International journal*, (2019), (Q1, ISI-Cited Publication, Impact Factor:3.45) <https://doi.org/10.1016/j.ceramint.2019.11.227>
- Nor Wahida Binti Subri, **Masoud Sarraf**, Bahman Nasiri-Tabrizi, Bakhtiar Ali, Mohd Faizul Mohd Sabri, Nazatul Liana Sukiman "Corrosion insight of iron and bismuth added Sn-1Ag-0.5Cu lead-free solder alloy", *Corrosion Engineering, Science and Technology journal*, (2019), (Q2, ISI-Cited Publication, Impact Factor:1.393) <https://doi.org/10.1080/1478422X.2019.1666458>
- 2018 **Masoud Sarraf**, Ali Dabbagh, Bushroa Abdul Razak, Bahman Nasiri-Tabrizi, Hamid Reza Madaah Hosseini, Saeed Saber-Samandari, Noor Hayaty Abu Kasim, Lum Kah Yean, Nazatul Liana Sukiman "Silver oxide nanoparticles-decorated tantalum nanotubes for enhanced antibacterial activity and osseointegration of Ti6Al4V", *Materials & Design*, 154, (2018), 28-40 (Q1, ISI-Cited Publication, Impact Factor:4.525) <https://doi.org/10.1016/j.matdes.2018.05.025>
- Masoud Sarraf**, Ali Dabbagh, Bushroa Abdul Razak, Reza Mahmoodian, Bahman Nasiri-Tabrizi, Hamid Reza Madaah Hosseini, Saeed Saber-Samandari, Noor Hayaty Abu Kasim, Hadijah Binti Abdullah, Nazatul Liana Sukiman "Highly-ordered TiO₂ nanotubes decorated with Ag₂O nanoparticles for improved biofunctionality of Ti6Al4V", *Surface and Coatings Technology*, 349, (2018), 1008-1017 (Q1, ISI-Cited Publication, Impact Factor:2.923) <https://doi.org/10.1016/j.surfcoat.2018.06.054>
- Ali Dabbagh, Ziba Hedayatnasab, Hamed Karimian, **Masoud Sarraf**, Chai Hong Yeong, Hamid Reza Madaah Hosseini, Noor Hayaty Abu Kasim, Tin Wui Wong, Noorsaadah Abdul Rahman "Polyethylene glycol-coated porous magnetic nanoparticles for targeted delivery of chemotherapeutics under magnetic hyperthermia condition" *International Journal of Hyperthermia*, (2018), 1-11 (Q1, ISI-Cited Publication, Impact Factor:3.44) <https://doi.org/10.1080/02656736.2018.1536809>
- Masoud Sarraf**, Nazatul Liana Sukiman, Bushroa Abdul Razak, Bahman Nasiri Tabrizi; Noor Hayaty Abu Kasim, Wan Jeffrey Basirun "In-vitro bioactivity and corrosion resistance enhancement of Ti-6Al-4V by highly-ordered TiO₂ nanotube arrays", *Journal of the Australian Ceramic Society* (2018), 57(1), 187-200 (Q2, ISI-Cited Publication, Impact Factor:0.587) <https://doi.org/10.1007/s41779-018-0224-1>
- 2017 **Masoud Sarraf**, Bushroa Abdul Razak., Ryan Crum, Carlos Gamez, Brian Ramirez, Noor Hayaty Abu Kasim, Bahman Nasiri-Tabrizi, Vijay Gupta, Nazatul Liana Sukiman, Wan Jeffrey Basirun "Adhesion measurement of highly-ordered TiO₂ nanotubes on Ti-6Al-4V alloy." *Processing and Application of Ceramics*, 11(4), (2017), 311-321. (Q1, ISI-Cited Publication, Impact Factor:1.152) <https://doi.org/10.2298/PAC1704311S>
- Masoud Sarraf**, Bushroa Abdul Razak, Bahman Nasiri-Tabrizi, Ali Dabbagh, Noor Hayaty Abu Kasim, Wan Jeffrey Basirun, Eshamsul Bin Sulaiman "Nanomechanical properties, wear resistance and in-vitro characterization of Ta₂O₅ nanotubes coating on biomedical grade Ti-6Al-4V" *Journal of the Mechanical Behavior of Biomedical Material* 66, (2017): p.159-171. (Q1, ISI-Cited Publication, Impact Factor:3.239) <https://doi.org/10.1016/j.jmbbm.2016.11.012>
- 2016 **Masoud Sarraf**, Bushroa Abdul Razak, Ali Dabbagh, Bahman Nasiri-Tabrizi, Noor Hayaty Abu Kasim, Wan Jeffrey Basirun "Optimizing PVD conditions for electrochemical anodization growth of well-adherent Ta₂O₅ nanotubes on Ti-6Al-4V alloy". *RSC Advances* 6(82), (2016): p. 78999-79015. (Q1, ISI-Cited Publication, Impact Factor:3.289) <https://doi.org/10.1039/C6RA11290K>
- Erfan Zalnezhad, Elahe Maleki, Seyedeh Maryam Banihashemian, Jaewoo Park, Young Beom Kim, **Masoud Sarraf**, Ahmed Sarhan, Ramesh Singh "Wettability, structural and optical properties investigation of TiO₂ nanotubular arrays" *Journal of the Materials Research Bulletin* 78, (2016): 179-185, (Q1, ISI-Cited Publication, Impact Factor:2.873) <https://doi.org/10.1016/j.materresbull.2016.01.035>
- Mohammad Hemmat Esfe, Wei-Mon Yan, Masoud Afrand, **Masoud Sarraf**, Davood Toghraie, Mahidzal Dahari "Estimation of thermal conductivity of Al₂O₃/water (40%)-ethylene glycol (60%) by artificial neural

network and correlation using experimental data" *International Communications in Heat and Mass Transfer* 74, (2016):p. 125-128 (Q1, ISI-Cited Publication, Impact Factor: **4.463**)
<https://doi.org/10.1016/j.icheatmasstransfer.2016.02.002>

- 2015 **Masoud Sarraf**, Erfan Zalnezhad, Bushroa Abdul Razak, Abdel Magid Hamouda , Ali Reza Rafieerad, Bahman Nasiri-Tabrizi. "**Effect of microstructural evolution on wettability and tribological behavior of TiO₂ nanotubular arrays coated on Ti-6Al-4V.**" *Ceramics International* 41, no. 6, (2015): 7952-7962. (Q1, ISI-Cited Publication, Impact Factor:**3.057**)
<https://doi.org/10.1016/j.ceramint.2015.02.136>

Ali Reza Rafieerad, Erfan Zalnezhad, Bushroa Abdul Razak, Abdel Magid Hamouda, **Masoud Sarraf**, Bahman Nasiri-Tabrizi. "**Self-organized TiO₂ nanotube layer on Ti-6Al-7Nb for biomedical application.**" *Surface and Coatings Technology* 265 (2015): 24-31. (Q1, ISI-Cited Publication, Impact Factor:**2.906**)
<https://doi.org/10.1016/j.surfcoat.2015.01.067>

Ali Reza Rafieerad, Bushroa Abdul Razak, Erfan Zalnezhad, **Masoud Sarraf**, Wan Jeffrey Basirun, Saeed Baradaran, Bahman Nasiri-Tabrizi. "**Microstructural development and corrosion behavior of self-organized TiO₂ nanotubes coated on Ti-6Al-7Nb.**" *Ceramics International* 41, (2015): 10844-10855. (Q1, ISI-Cited Publication, Impact Factor:**3.057**)
<https://doi.org/10.1016/j.ceramint.2015.05.025>

- 2014 **Masoud Sarraf**, Erfan Zalnezhad, Bushroa Abdul Razak, Abdel Magid Hamouda, Saeed Baradaran, Bahman Nasiri-Tabrizi, Ali Reza. Rafieerad. "**Structural and mechanical characterization of Al/Al₂O₃ nanotube thin film on TiV alloy.**" *Applied Surface Science* 321 (2014): 511-519. (Q1, ISI-Cited Publication, Impact Factor: **4.439**)
<https://doi.org/10.1016/j.apsusc.2014.10.040>

Bahman Nasiri-Tabrizi, Erfan Zalnezhad, Abdel Magid Hamouda, Wan Jeffrey Basirun, Belinda Pinguan-Murphy, Abbas Fahami, **Masoud Sarraf**, Ali Reza Rafieerad. "**Gradual mechanochemical reaction to produce carbonate doped fluorapatite-titania composite nanopowder.**" *Ceramics International* 40, no. 10 (2014): 15623-15631. (Q1, ISI-Cited Publication, Impact Factor:**3.057**)
<https://doi.org/10.1016/j.ceramint.2014.07.082>

Muhammad Mahfuz, Amin Kamyar, Omid Afshar, **Masoud Sarraf**, Muhammad Anisur Rahman, Mahmud Arman Kibria, Saidur Rahman, Henk Metselaar , "**Exergetic analysis of a solar thermal power system with PCM storage**", *Energy Conversion and Management*, 78 (2014) 486-492. (Q1, ISI-Cited Publication, Impact Factor: **6.377**)
<https://doi.org/10.1016/j.enconman.2013.11.016>

- 2013 **Masoud Sarraf**, Behzad Rismanchi, Saidur Rahman., Hew Wooi Ping, Nasrudin Bin Abd Rahim "**Renewable energy policies for sustainable development in Cambodia**". *Renewable and Sustainable Energy Reviews*, 22, (2013), 223-229. (Q1, ISI-Cited Publication, Impact Factor: **9.184**)
<https://doi.org/10.1016/j.rser.2013.02.010>

Farhood Sarrafzadeh Javadi, Behzad Rismanchi, **Masoud Sarraf**, Omid Afshar, Saidur Rahman., Hew Wooi Ping, Nasrudin Bin Abd Rahim. "**Global policy of rural electrification**". *Renewable and Sustainable Energy Reviews*, 19, (2013), 402-416. (Q1, ISI-Cited Publication, Impact Factor: **9.184**)
<https://doi.org/10.1016/j.rser.2012.11.053>

Book Chapter

- **Masoud Sarraf**, Bushroa Abdul Razak, Bahman Nasiri-Tabrizi, Noor Hayaty Abu Kasim, Wan Jeffrey Basirun "**Anodic nanotubular oxide layers on Ti-6Al-4V alloy for bio-implant applications**" in *Microscopy and Imaging Science: Practical Approaches to Applied Research and Education* A. Méndez-Vilas, Editor 2016.
- Negin Ashrafi, MA Azmah Hanim, S Sulaiman, Tang Sai, Hong and **Masoud Sarraf**" **Mechanical Properties of Silicon Carbide Reinforced Aluminum Matrix Composites by Powder Metallurgy**" in *Case Study on Material Engineering and Applied Sciences: Upm and Ku Azmah Hanim Mohamed Ariff*, Editor 2019

Patents

- **Masoud Sarraf**, Bushroa Abdul Razak, Bahman Nasiri-Tabrizi, Erfan Zalnezhad, Saeed Baradaran, Noor Hayaty Abu Kasim "**A Process for Producing Nanotube Coating on Titanium Alloy**" UM.TNC2/UMCIC/603/802:PI 2016700835.

Selected Presentations

- Centre of Advanced Materials (CAM) postgraduate symposium, 26/09/2018.
- Computer Aided Drug Design (CADD), 8.12.2017.

- 22nd International Conference on Wear of Materials, 14-18 April 2019 | Hyatt Regency Miami, Miami, FL, USA.
- 4th International Conference on The Science and Engineering of Material (ICoSEM 2019), 26-28 August 2019, Kuala Lumpur.
- International Tribology Conference (ITC Sendai 2019), 17-21 September 2019, Sendai International Center, Japan.

Awards

- Fully funded by University of Malaya for the PhD Program.

Extra-Curricular

- Member of American Society of Mechanical Engineering (ASME)
- Member of Board of Engineers Malaysia (BEM), 14/12/2018

Evaluation Activities

- Chief Editors, International Journal of Innovative Research in Engineering & Multidisciplinary Physical Sciences (IJIRMP), E-ISSN: 2349-7300
- Editorial Board, 07/2018, Journal of Evolutions in Mechanical Engineering
- Journal of Surface and Coatings Technology, reviewer
- Journal of Physics and Chemistry of Solids, reviewer
- International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET), reviewer

International Collaborations

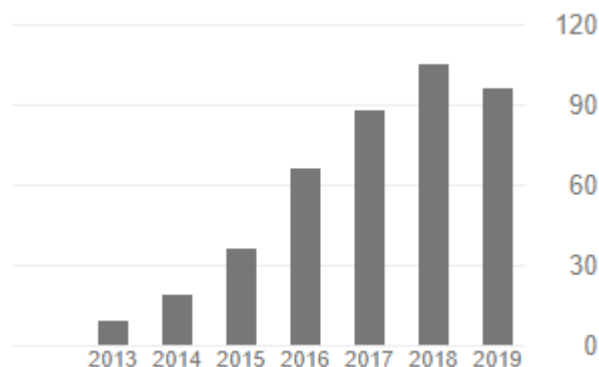
- Department of Mechanical Engineering, Faculty of Engineering, UCLA, Los Angeles, CA 90032, United States
- Department of Materials Science and Engineering, Sharif University of Technology, Tehran, Iran
- New Technologies Research Center, Amirkabir University of Technology, Tehran, Iran
- Department of Mechanical Convergence Engineering, Hanyang University, Republic of Korea
- Department of Energy and Refrigerating Air-Conditioning Engineering, National Taipei University of Technology, Taipei, Taiwan
- Mechanical and Industrial Engineering Department, College of Engineering, Qatar University, Doha, Qatar

Certificates

- Computer Aided Design (CAD): SolidWorks
- Statistical Analysis using SPSS Software
- The Effective Use of Research Tools and Resources
- Matlab: Fundamental and Programming Techniques

Citations

- Citations 422
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Teaching experience

- Advanced Surface Engineering, Department of Mechanical Engineering, 2016/2017, *Post Graduate* (Tutor)
- U4-reciprocating air compressor, KIG 3004, Department of Mechanical Engineering, 2018/2019, Semester 2, *Under Graduate* (Lab demonstrator)
- U1- Fluid Mechanics, KIG 2006, Department of Mechanical Engineering 2019/2020, Semester 1, *Under Graduate* (Lab demonstrator)

PhD Supervision

- Negin Ashrafi (GS49138), University Putra Malaysia, External supervisor, Mechanical and physical properties of Magnetite and Silicon carbide reinforced Aluminum Matrix, 2018/2019, Ongoing

Master Supervision

- Ali Shahroziyanfar, Islamic Azad University, External supervisor, Preparation Hydrophilic/superhydrophobic patterned surface by copper oxide nanostructure for fog harvesting, 2018/2019, Completed

**Mentoring
Studentship
Projects**

- PhD, Elahe Maleki, Wettability, structural and optical properties investigation of TiO₂ nanotubular arrays projects, 2014/2016
- PhD, Alireza Rafieerad, Biocompatibility Improvement and Mechanical Properties of Ti-6Al-7Nb by application of thin film hard coatings, 2014/2017
- PhD, Siti Khumaira Mohd Jamari, residual stress of deposited coating, 2017/2018, ongoing
- Master, Abu Hanifah Bin Muhamad Ali (Matric No: KQJ 170004), University of Malaya, Surface Modification of Aluminium Alloy AA5052 and Its Corrosion Characterization, 2017/2019, Completed
- Master, Christopher Tseu Zia Chyuan (Matric No: KQK 160026), University of Malaya, Surface Modification of Aluminium Alloy Series 6 (AA6061 T657) and Its Corrosion Characteristics, 2017/2019, Completed
- Master, Shalini Devi Ramaiya (Matric No: KQJ170010) University of Malaya, Corrosion Characterization of Optimized ZrO₂-SiO₂ Mixed Nanotubes Coated on Aluminium Alloy AA3003, 2017/2019, Completed
- Master, Angel Anak Richard (Matric No: Kqj170005), University of Malaya, Surface Modification of Aluminium -Zinc Alloy (AA7075) and Its Corrosion Characteristics, 2017/2019, Completed