

CURRICULUM VITAE

Personal Information

Name: Atefeh

Family Name: Solouk

Current Position: Assistant Prof at Biomaterials and Tissue Engineering Groups, Biomedical Engineering Faculty of Amirkabir University of Technology (Tehran Polytechnic) (www.aut.ac.ir), and member of Nano technology and stem cells therapy at Royan Institute of Iran (www.royaninstitute.org)



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Educations

- **Visiting Research Scholar**, Michigan Technological University (MTU), July 2014 – August 2014 (2 months) (<http://www.mtu.edu/>), Houghton, Michigan, USA.
- **Ph.D. in Biomedical Engineering-Biomaterials, GAP: 19.31/20**, 2006 - 2010: Department of Biomedical Engineering, Amirkabir University of Technology (<http://www.AUT.ac.ir>), Tehran, Iran.

Thesis: “Plasma surface modification of a hybrid nanocomposite based on polyurethane to improve its blood compatibility”

Supervisors: Dr. Mehran Solati - Prof.Siamak Najarian;

Co-supervisors: Prof. Hamid Mirzadeh -Prof.Alexander M.Seifalian.

- **M.Sc. in Biomedical Engineering-Biomaterials, GAP: 18.55/20**, 2003- 2006: Department of Biomedical Engineering, Amirkabir University of Technology (<http://www.AUT.ac.ir>), Tehran, Iran.

Thesis: “Synthesis and Characterization of a Novel Biocompatible and Blood Compatible Polyurethanes, in vitro Assays”

Supervisors: Dr.Hamid Yeganeh and Dr. Fariba Orang.

- **B.Sc. in Material Engineering, GAP: 16/20**, 1999- 2003: Department of Material Engineering, Iran University of Science and Technology (<http://www.iust.ac.ir>), Tehran, Iran.

Thesis: “Extracting copper from kalkoprite by mechanical approach”.

Supervisors: Dr. Vahdati-khaki – Dr. Masood Goodarzi.

- **Diploma in Physics and Mathematics, GAP: 19.25 / 20**, June 1999: National Center for nurturing talent shining, Farzanegan High School, Tehran, Iran.

Taught Course

1. **Stem Cells Engineering**, MSC/PhD: Spring 2013 & Spring 2014.
2. **Metals and Their Applications in Biomedical Engineering**, MSC/PhD: Fall 2013, Fall 2014.
3. **Principal of Biomaterials**, BSC: Spring 2013 & Spring 2014.
4. **Principal of Polymer Technology**, BSC: Fall 2011, Fall 2012, Fall 2013, Fall 2014.
5. **Medical Implants** Fall 2014.

Research Interest:

- **Metallic Implants Including Orthopedic and Dental**
- **Cardio Vascular Implants**
- **Surface Modification of Biomaterials**
- **Tissue Engineering of Skin and Cartilage**

Publications

Journal Papers

1. Akbar Karkhaneh, Ziba Naghizadeh, Mohammad Ali Shokrgozar, Shahin Bonakdar, Atefeh Solouk and Noushin Haghighipour, **Effects of hydrostatic pressure on biosynthetic activity during chondrogenic differentiation of MSCs in hybrid scaffolds**, the International journal of artificial organs 2 (37), 142-148, 2014.
2. Majid Halvaei, Atefeh Solouk, Nabiollah Abolfathi, Noushin Haghighipour, Mahnaz Eskandari, Mohammad Ali Shokrgozar, **Effect of Mechanical Stimulations on the Fate of Stem Cells–A Review**, Modares Journal of Medical Sciences: Pathobiology 16 (3), 1-23, 2013.
3. Hadi Bakhshi, Hamid Yeganeh, Shahram Mehdipour-Ataei, Atefeh Solouk, and Shiva Irani, **Polyurethane Coatings Derived from 1,2,3-Triazole-Functionalized Soybean Oil-Based Polyols: Studying their Physical, Mechanical, Thermal, and Biological Properties**, Macromolecules, 46, 7777–7788, 2013.
4. Atefeh Solouk, Brian G. Cousins , Hamid Mirzadeh, Alexander M. Seifalian, **Application of Plasma Surface Modification Technique to Improve Blood Compatibility of Vascular Grafts: A Review**, Biotechnology Applied Biochemistry, 58 (5), 311- 327, 2011.
5. Atefeh Solouk, Brian G. Cousins, Hamid Mirzadeh, Mehran Solati Hashtjin, Siamak Najarian, Alexander M. Seifalian, **Surface modification of POSS-nanocomposite biomaterials using reactive oxygen plasma treatment for cardiovascular surgical implant applications**, Biotechnology Applied Biochemistry, 58(3), 147 – 161, 2011.
6. Atefeh Solouk, Mehran Solati Hashtjin, Siamak Najarian, Alexander M. Seifalian, Hamid Mirzadeh, **Optimization of Acrylic Acid Grafting onto POSS-PCU Nanocomposite Using Response Surface Methodology**, Iranian Polymer Journal, 20 (2), 91-107, 2011.
7. Atefeh Solouk, Hamid Mirzadeh, Mohammad Ali Shokrgozar, Mehran Solati Hashtjin, Siamak Najarian, Alexander M. Seifalian, **The study of collagen immobilization on a novel nanocomposite to enhance cell adhesion and growth**, Iranian Biomedical Journal, 15 (1-2), 6-14, 2011.

8. Mohammad Farhadi, Hamid. Mirzadeh, Atefeh. Solouk, Alimohamad Asghari, Maryam. Jalessi, Hadi. Ghanbari, Parin Yazdanifard, **Collagen-Immobilized Patch for Repairing of Small Tympanic Membrane Perforations: *in Vitro* and *in Vivo* Assays**, Journal of Biomedical Materials Research, 100A: 549–553, 2012.
9. Saeid Amanpour, Atefeh Solouk, Hamid Mirzadeh, Mohammad-Ali Mohagheghi, Shahram Rabbani, and Farokh Tirgari, **In Vitro and In Vivo Assays of Cartilage Repair by Perforated Polyurethane Scaffold**, Iranian Polymer Journal, 19 (6), 1-14, 2010.
10. Hamid Yeganeh, Fariba Orang, Atefeh Solouk and Mohammad Rafienia, **Synthesis, Characterization and Preliminary Investigation of Blood compatibility of a Novel Epoxy-Modified Polyurethane Networks**, Journal of Bioactive and Compatible Polymers, 23, 276-300, 2008.
11. Hamid Mirzadeh and Atefeh Solouk, **Tissue Engineering Using Biodegradable Polymers**, Yakhteh Medical Journal, 8, 11-17 , 2007.

Conference Papers

1. Sajedeh Khorshidi, Atefeh Solouk, Hamid Mirzadeh, Saeedeh Mazinani, **The Effects of Electrospinning Parameters on Nanofiber Diameter of a Polymeric Biocomposite for Biomedical Application, 3rd International Conference on Electrospinning**, San Francisco, California, USA, Aug 4th - 7th, 2014.
2. Atefeh Solouk and Hamid Mirzadeh, **Skin Tissue Engineering: Progresses & Challenge**, 3rd National Congress on Burn, Tehran, Iran, February, 27th and 28th, 2014, Invited Speaker.
3. Ziba Naghizadeh, Akbar Karkhaneh, Mohammad Ali Shokrgizar, Shahin Bonakdar and Atefeh Solouk, **Biomimetic Scaffold to Enhance Chondrogenic Differentiation of Mesenchymal Stem Cells**, 9th Royan International Twin Congress on Reproductive Biomedicine and Stem Cells Biology & Technology, Tehran, Iran, September 4 th – 6 th, 2013.

4. Ziba Naghizadeh, Akbar Karkhaneh, Mohammad Ali Shokrgizar, Shahin Bonakdar and Atefeh Solouk and Noushin Haghighipour, **Effects of Hydrostatic Pressure on Chondrocyte Biosynthesis in Polycaprolactone-Polyvinyl Alcohol-Gelatin Scaffolds**, 9th Royan International Twin Congress on Reproductive Biomedicine and Stem Cells Biology & Technology, Tehran, Iran, September 4th – 6th, 2013.
5. Atefeh Solouk, Hamid Mirzadeh, Alexander M. Seifalian, **Engineering technique in order to improve the patency rate of bypass grafts**, The First Iranian Annual Congress on Progress in Tissue Engineering and Regenerative Medicine, Page:44, Tehran, Iran, May 18th -20th , 2013.
6. Jalal Kia, Hamid Mirzadeh, Atefeh Solouk and Saeedeh Mazinani, **Chitosan/PVA/HEC Electrospun Scaffold for Skin Tissue Engineering**, The First Iranian Annual Congress on Progress in Tissue Engineering and Regenerative Medicine, Page: 103, Tehran, Iran, May 18th -20th , 2013.
7. Zohreh Bagher, Atefeh Solouk, Mahmoud Azami, Mohammad Taghi Joghataei, Hamid Mirzadeh, **Synthesis of collagen-grafted electrospun poly(caprolactone) nanofibers for nerve tissue engineering**, The First Iranian Annual Congress on Progress in Tissue Engineering and Regenerative Medicine, Page: 76, Tehran, Iran, May 18th -20th , 2013.
8. Atefeh Solouk, Hamid Mirzadeh, Alexander M. Seifalian, **Engineering the Surface of POSS-PCU Nanocomposite by Plasma to Improve Blood Compatibility**, ISPST2012, Amirkabir University of Technology, Tehran, Iran, October 21th -25th , 2012.
9. Atefeh Solouk, Hamid Mirzadeh, Alexander M. Seifalian, **Engineering technique in order to improve the patency rate of bypass grafts**, 5th symposium on updates in CV diseases, Shiraz, Iran, April 24th-27th , 2012.

10. Atefeh Solouk, Brian G. Cousins, Hamid Mirzadeh, Mohammad Ali Shokrgozar, Alexander M. Seifalian, **Biomimetic Modification of POSS-PCU Nanocomposite Using Response Surface Methodology**, The International Journal of Artificial Organs, Abstracts of the 4th Joint ESAO-IFAO Congress, Porto, Portugal, October 9th - 12th, 2011.
11. Mohammad Farhadi, Hamid. Mirzadeh, Atefeh. Solouk, Alimohamad Asghari, Maryam. Jalessi, Hadi. Ghanbari, Parin Yazdanifard, **Collagen-Immobilized Patch for Repairing of Small Tympanic Membrane Perforations: In Vitro and In Vivo Assays**, The International Journal of Artificial Organs, Abstracts of the 4th Joint ESAO-IFAO Congress, Porto, Portugal, October 9th - 12th, 2011.
12. Atefeh Solouk, Mehran Solati Hashtjin, Siamak Najarian, Hamid Mirzadeh, Alexander M. Seifalian, **Oxygen Plasma Effect on the Surface Properties of a Blood Compatible Nanocomposite**, Proceedings of 3rd International Conference on Plasma Medicine (ICPM 3), Greifswald-Germany, September 19th-24th, 2010, Page: 71.
13. Atefeh Solouk, Mehran Solati Hashtjin, Siamak Najarian, Hamid Mirzadeh, Alexander M. Seifalian, **Improving Blood Compatibility of a New Generation of Vascular Grafts by Oxygen Plasma Modification**, XXXVII Conference of European Society for Artificial Organs (ESAO), Skopje, Macedonia, September 8th – 11th, 2010, Page: 92.
14. A. Solouk, H. Mirzadeh, S. Amanpour, F. Tirgari, M. Oghabian, **Injectable, biodegradable Poly (DL-lactide-co-glycolide) carboxyl terminated for cartilage tissue engineering: initial in vivo study**, Proceedings of ISPST 2009, A-10- 774-1, Tehran, Iran, 17-21 Oct. 2009.
15. Saeid Amanpour, Atefeh Solouk, Hamid Mirzadeh, Mohammad-Ali Mohagheghi, Shahram Rabbani, Massod Soleimani, Farokh Tirgari, **Perforated polyurethane scaffold as cartilage substitution in vitro & in vivo assessments**, Proceedings of ISPST 2009, A-10- 774-2, Tehran, Iran, 17-21 Oct. 2009.
16. Atefeh Solouk Mofrad, Hossein Ghanbari, Asmeret G. Kidane, Gaetano Burriesci, Bala Ramesh, Hamid Mirzadeh, Mohan Edirisenghe, Philipp Bonhoeffer, George Hamilton, Alexander M. Seifalian, **A new calcification resistance, biostable, biocompatible POSS-nanocomposite polymer for developing new generation of heart valves**, 11th Biennial Meeting of the International Society for Applied Cardiovascular Biology (ISACB), Bordeaux, France, September 18-20, 2008.

17. Atefeh Solouk, Hamid Mirzadeh and Saeid Amanpour, **Injectable, Biodegradable Poly (DL-lactide-co-glycolide) Carboxyl Terminated for Cartilage Tissue Engineering: in vivo**, The International Journal of Artificial Organs, 30 (8), 730, 2007, Abstracts of the XXXIV ESAO Congress, Krems-Austria, 5-8 Sep. 2007.
18. A. Solouk, H. Yeganeh, M. Rafienia and F. Orang, **Preparation and evaluation of blood compatibility of novel epoxy-modified polyurethanes**, Iran's 1st International Conference on Biomaterials, Nov. 12-15, 2007, Tehran, Iran, awarded as the best research presented at the conference.
19. D.Vasavada, A. Solouk, H. Trivedi and J. Dave, **Polypropylene- A most inert biocompatible polymer for human tissue**. 8th International Seminar on Polymer Science and Technology (ISPST 2007), Tehran, Iran, P. 103, 23-25 Oct. 2007.
20. H. Yeganeh, S. Jamshidi, A. Solouk, H. Jamshidi, P. Hojati, **Synthesis, Characterization and Properties of Epoxy-Modified Polyurethanes as a Novel Class of Biomaterials**, 4th International Symposium on High-tech Polymer Materials , Beijing, China, May 2006.
21. H. Yeganeh, F. Orang and A. Solouk, **Preparation and Evaluation of Bio and Hemocompatibility of a Novel Epoxy-Modified Polyurethane**, Iranian National Seminar on Organic chemistry, Ahwaz, Iran, March 2006.

Patents:

1. Atefeh Solouk, Hamid Mirzadeh, Mehran Solati Hashtjin, Siamak Najarian, **Surface Energy Optimization of Plasma Treated POSS-PCU Nanocomposite Using Response Surface Methodology**, *Iranian Patent*, 2011.
2. Atefeh Solouk and Hamid Mirzadeh, **Grafting Optimization of Acrylic acid onto POSS-PCU Nanocomposite Using Response Surface Methodology**, *Iranian Patent*, 2011.

Certificates and Prizes

- IFAO Travel Scholarship **award** (700 Euro) from ESAO at Oct. 2011 in Porto, Portugal.
- Certificate for **First-rank MSc** alumnus, Amirkabir University of Technology (Tehran Polytechnic), Iran, 2006 (MSc's transcript is attached).
- Nanotechnology **award** from Iran nanotechnology association, 2010.
- Certificate for **First-rank PhD** alumnus, Amirkabir University of Technology (Tehran Polytechnic), Iran, 2010 (PhD's transcript is attached).
- **Lecturer** at 5th symposium on updates in CV diseases, Shiraz, Iran, April 24th-27th, 2012.
- **Oral Presenter** at International Seminar on Polymer Science and Technology (ISPST), code: 1445, Tehran, Iran, October 21th-25th, 2012.
- **Oral Presenter** at 4th Joint ESAO-IFAO Congress, Porto, Portugal, October 9th - 12th, 2011.
- **Oral Presenter** at International Seminar on Polymer Science and Technology (ISPST), A-10- 774-1, Tehran, Iran, 17th-21th Oct. 2009.

Research Experience

2006- 2007

Iran Polymer & Petrochemical Institute, Biomaterial Department, as a researcher, conducting research project regarding Cartilage Tissue Engineering Using Injectable and Preshaped Scaffolds : *in vivo*

2008-2010

Iran Polymer & Petrochemical Institute, Biocompatible Polymers Department, as a researcher, conducting research project regarding surface modification of biomaterials.

2009 –2010

Iran Polymer & Petrochemical Institute, Plasma Lab, as researcher and technician of Plasma machine (Nano-RF, Diener Electronic GmbH, Germany).

2010-2012

Amirkabir University of Technology (Tehran Polytechnic), Biopolymer lab, as researcher, conducting research projects regarding natural polymer electrospun scaffolds for tissue engineering.

2012 – Present

Royan Institute of Iran, Cell bank Lab, as main co-worker, conducting research projects regarding scaffold free tissue engineering.

Trained Course

Summer School at Royan Institute of Iran, Tehran, Iran, July, 2012.

Winter School at ESAO-ASAIO, Semmering Austria, January, 2011.

Cell culture works, Pasteur institute of Iran, 2009.

Application of laser and plasma in industry and medicine, Iran Polymer and Petrochemical Institute, 2005.

Workshop of Polymers in medicine, Iran Polymer and Petrochemical Institute, 2004.

Membership & Reviewer

Member of the Iranian Polymer Society.

Member of Iranian Society of Biomedical Engineering

Member of European Society for Artificial Organ (ESAO)

Reviewer of Iranian Polymer Journal.

Reviewer of Progress in Biomaterials Journal.

Reviewer of Application of Biomaterial Journal.